

SEQUENCE LISTING

<110> National Institute of Advanced Industrial Science and Technology

<120> A method for producing a recombinant protein by using a single or plural vectors in a bacterium belonging to genus Rhodococcus

<130> PH-2110-PCT

<140>

<141>

<150> JP 2003/116280

<151> 2003-04-21

<160> 107

<170> PatentIn Ver. 2.1

<210> 1

<211> 25

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:primer sHN1

<400> 1

cagagctcgt caggtggcac ttttc

25

<210> 2
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:primer sHN2

<400> 2
gttgtacaac tagtcgtgcc agctgcatta 30

<210> 3
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:primer sHN120

<400> 3
gctgtacacc cgagaagctc ccagcg 26

<210> 4
<211> 29
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:primer sHN121

<400> 4

cggagctctt gaacgagagt tggccgttg

29

<210> 5

<211> 39

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:primer sHN122

<400> 5

tcaagatctat cgtcatcgac tgcgatcacg ttgacgccc

39

<210> 6

<211> 31

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:primer sHN123

<400> 6

acggatcctc cgctgaaatc tcgcccgtgcc t

31

<210> 7

<211> 28

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:primer sHN130

<400> 7

cttcatatgc ggagctcgac cgcgcg 28

<210> 8

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:primer sHN131

<400> 8

atcgagtcgt tcaagggcgt cg 24

<210> 9

<211> 23

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:primer NEB1233

<400> 9

agcggataac aattcacac agg 23

<210> 10

<211> 19

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:primer sHN10

<400> 10

caccaggatg atcccccac

19

<210> 11

<211> 18

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:primer sHN11

<400> 11

gacagtgaca tcaccagg

18

<210> 12

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:primer NEB1224

<400> 12

cgccagggtt ttcccaagtca cgac

24

<210> 13

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:primer sHN40

<400> 13

atgagctact ccgtgggaca ggtg

24

<210> 14

<211> 29

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:primer sHN41

<400> 14

tgcagatctt ccgtttcgac gtgacggag

29

<210> 15

<211> 26

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:primer sHN42

<400> 15

cagtctagaa ttgatctcct cgaccg

26

<210> 16

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:primer sHN43

<400> 16

tgcaagctcc tatgtaaacg

20

<210> 17

<211> 19

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:primer sHN55

<400> 17

cgcctgctcc acggccgccc

19

<210> 18

<211> 18

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:primer sHN56

<400> 18

atggaggcac gcagcatg 18

<210> 19

<211> 19

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:primer sHN57

<400> 19

cgc(ccc)tcg gagtcggcg 19

<210> 20

<211> 18

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:primer sHN58

<400> 20

atggacgccc ccgaggac 18

<210> 21

<211> 26

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:primer sHN147

<400> 21

cgtgtacata tcgaggcggg ctccca

26

<210> 22

<211> 31

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:primer sHN39

<400> 22

atccatggcc gctcccttct ctgacgccgt c

31

<210> 23

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:primer sHN36

<400> 23

accatggatc aggaatgcat ag

22

<210> 24
<211> 59
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:primer sHN37

<400> 24
ttactagttt attaatgatg atgatgatga tgcaggtgtt tcaggatgaa atccgaaag 59

<210> 25
<211> 29
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:primer sHN6

<400> 25
cgtctagagt cccgcgtgagg cggcgtagc 29

<210> 26
<211> 29
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:primer sHN9

<400> 26

ctactagtcg acccaccggc acccgtag

29

<210> 27

<211> 30

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:primer sHN141

<400> 27

aatctagagt aacgggctac tccgtttaac

30

<210> 28

<211> 30

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:primer sHN142

<400> 28

gggtcgacgg tcctcctgtg gagtggttct

30

<210> 29

<211> 33

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:primer sHN145

<400> 29

gcactcgaga tgaaatctaa caatgcgc tc atc 33

<210> 30

<211> 30

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:primer sHN152

<400> 30

agactagtc tcaacgac ag gagcacgatc 30

<210> 31

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:primer T7

<400> 31

gtaatacgac tcactatagg gc 22

<210> 32

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:primer sHN153

<400> 32

aatccacagg acgggtgtgg 20

<210> 33

<211> 19

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:primer sHN154

<400> 33

ctctacgccc gacgcatacg 19

<210> 34

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:primer T3

<400> 34

gcaattaacc ctcactaaag gg 22

<210> 35

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:primer sHN155

<400> 35

acgacgctct cccttatgcg 20

<210> 36

<211> 19

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:primer sHN156

<400> 36

ccgatgcctt tgagagcct 19

<210> 37

<211> 67

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:primer sHN110

<400> 37

aaccatggta tatctccttc ttaaagttaa acaaaattat ttcttagacgc cgtccacgct 60
gcctcct 67

<210> 38
<211> 77
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:primer NNco1

<400> 38
catgggccac catcaccatc accatatggg aattctacgt agcggccgcg gatccaagct 60
tagatctcga ggatgaa 77

<210> 39
<211> 77
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:primer NNco2

<400> 39
ctagttcatc ctcgagatct aagcttggat ccgcggccgc tacgtagaat tcccatatgg 60
tcatggtgat ggtggcc 77

<210> 40
<211> 71
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:primer CNco1

<400> 40

catggaaatt ctacgttagcg gccgcggatc caagcttaga tctcgaggac atcaccatca 60
ccatcactga a 71

<210> 41

<211> 71

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:primer CNco2

<400> 41

ctagttcagt gatgggtatg gtgatgtcct cgagatctaa gcttggatcc gcggccgcta 60
cgtagaattc c 71

<210> 42

<211> 29

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:primer sHN159

<400> 42

tccatatgcg ctcccttctc tgacgccgt 29

<210> 43

<211> 80

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:primer NNdel

<400> 43

tatggccat caccatcacc atcacgccc gggaaattcta cgttagcggcc gcggatccaa 60
gccttagatct cgaggatgaa 80

<210> 44

<211> 82

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:primer NNde2

<400> 44

ctagttcatc ctcgagatct aagcttggat ccgcggccgc tacgtagaat tcccatggcg 60
tcatggatct ggtgatggcc ca 82

<210> 45

<211> 71

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:primer CNdel

<400> 45

tatggaaatt ctacgttagcg gccgcggatc caagcttaga tctcgaggac atcaccatca 60
ccatcactga a 71

<210> 46

〈211〉 73

<212> DNA

<213> Artificial Sequence

220

〈223〉 Description of Artificial Sequence:primer CNde2

<400> 46

ctagttcagt gatggtgatg gtgatgtcct cgagatctaa gcttggatcc gcggccgcta 60
cgtagaattc cca 73

〈210〉 47

<211> 32

<212> DNA

⟨213⟩ Artificial Sequence

<220>

<223> Description of Artificial Sequence:primer sHN160

<400> 47

32

<2.10> 48

<2.11> 30

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:primer sHN343

<400> 48

aaactagttc agttagttgt atggatgtgc tcgagagatc t 41

<210> 49

<211> 8166

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:vector pTip-NH1

<400> 49

gagctcgacc gcgcgggtcc cggacgggaa agagcgggaa gctttgccag agagcgcga 60
cttccccttg cgttgggtat tgccggtcag ggcagccatc cgccatcgta gcgttagggta 120
tcacacccca ggaatcgctt cactgaacac agcagccgtt aggacgacca tgactgagtt 180
ggacaccatc gcaaattccgtt ccgatcccgc ggtgcagcgg atcatcgatg tcaccaagcc 240
gtcacgatcc aacataaaga caacgtttagt cgaggacgtc gagccctca tgcacagcat 300
cgccggccggg gtggagttca tcgaggtcta cggcagcgc acgagtcctt ttccatctga 360
gttgctggat ctgtgcgggc ggcagaacat accggtccgc ctcatcgact cctcgatgt 420
caaccagtttgc ttcaaggggg agcggaaaggc caagacattc ggcatcgccc gcgtccctcg 480
cccgccagg ttccggcata tcgctggccg gcgtggggac gtgcgtttc tcgacgggtt 540
gaagatcgta gggaaacatcg ggcgcataatgc acgcacgtcg ctgcgttcg gagcgtcggg 600
gatcatcttg gtggacatgtt acatcaccatcg catcgccgc cggcgttc aaaggccag 660
ccgaggttac gtcttctccc ttccggcgtt tctctccgtt cgcgaggagg ccatgcctt 720
cattcgggac agcggtatgc agctgtatgc gctcaaggcg gatggcgaca ttccgtgaa 780
ggaactcggg gacaatccgg atcggctggc ctgtgtttc ggcagcggaaa aggggtggcc 840

ttccgaccgtt ttcgaggagg cgtctccgc ctcggttcc atccccatga tgagccagac 900
cgagtccttc aacgtttccg ttccctcgg aatcgcgctg cacgagagga tcgacaggaa 960
tctcgccggcc aaccgataag cgcctctgtt cctcgacgc tcggttcctc gacctcgatt 1020
cgtcagtgtat gatcacctca cacggcagcg atcaccactg acatatcgag gtcaacggtc 1080
gtggtccggg cgggcactcc tcgaaggcgc ggccgacgcc cttaacgac tcgatgactc 1140
tagagtaacg ggctactccg tttaacggac cccgttctca cgctttaggc ttgacccgg 1200
agcctgcattt gggcattccg ccgtgaaccc ggtggatgc cccggcacc cggccttc 1260
agcaaagatc acctggcgcc gatgagtaag gcgtacagaa ccactccaca ggaggaccgt 1320
cgagatgaaa tctaacaatg cgctcatcgt catcctcggc accgtcaccc tggatgctgt 1380
aggcataggc ttgggtatgc cggtaatgcc gggctcttg cggatatcg tccattccga 1440
cagcatcgcc agtactatg gcgtgctgct agcgctatac gcgttgcgtc aatttctatg 1500
cgcacccgtt ctggagcac tggccgaccg ctggccgc cggccagtc tgctcgcttc 1560
gctacttggaa gccactatcg actacgcgtat catggcgacc acacccgtcc tggattct 1620
ctacgcccggaa cgcatcgtag ccggcatcac cggccgcaca ggtgcggttt ctggcccta 1680
tatcgccgac atcaccgtatg gggaaatcg ggctcgccac ttgggtca tgagcgcttg 1740
tttcggcggtt ggtatgggtt caggccccgt ggccggggga ctgttggcgcc ccatctcctt 1800
gcatgcacca ttccctgcgg cggcggtgct caacggccctc aacctactac tggctgctt 1860
cctaattgcag gagtcgcata agggagagcg tcgtccgtatg cccttggagag ccttcaaccc 1920
agttagctcc ttccgggtgg cgcggggcat gactatcgatc gcccacca tgactgtctt 1980
ctttatcatg caactcgtag gacagggtgcc ggcagcgctc tgggtcattt tcggcgagga 2040
ccgccttcgc tggagcgcga cgtatgcgg cctgtcgctt gcggtattcg gaatcttgc 2100
cgccctcgct caaggccatcg tcactggatcc cggccacaaa cgttgcggcg agaaggcaggc 2160
cattatcgcc ggcattggcg cgcacgcgtt gggctacgtt ttgttggcggt tcgcgacgc 2220
aggctggatg gccttccca ttatgattct tctcgcttc ggcggcatcg ggtatggccgc 2280
gttgcaggcc atgcgttcca ggcaggtaga tgacgaccat cagggacagc ttcaaggatc 2340
gctcgccgtt cttaccagcc taacttcgtat cattggacccgt ctgtatcgatc cggcgattta 2400
tgccgcctcg gcgagcacat ggaacgggtt ggcatggatt gtggcgccgc ccctataacct 2460
tgtctgcctc cccgcgttgc gtgcgggtgc atggagccgg gccacccgtt cctgaatggaa 2520
agccggcgcc acctcgctaa cggattcacc actccaagaa ttggagccaa tcaatttttgc 2580
cggagaactg tgaatgcgcga aaccaaccct tggcagaaca tatccatcgatc gtccgcctc 2640

tccagcagcc gcacgcggcg catctcgggc agcgttgggt cctggccacg ggtgcgcac 2700
atcggtctcc tgtcggttag gactagaatt gatctccctcg accgccaatt gggcatctga 2760
gaatcatctg cgtttctcgc acgcaacgta cttgcaacgt tgcaactcct agtgttgtga 2820
atcacacccc accgggggtt gggattgcag tcaccgattt ggtgggtgcg cccaggaaga 2880
tcacgittac ataggagctt gcaatgagct acitccgtggg acaggtggcc ggcttcgccc 2940
gagtgacggt ggcacgcgtg caccactacg acgacatcgg cctgctcgta ccgagcgagc 3000
gcagccacgc gggccaccgg cgctacagcg acgcccaccc cgaccggctg cagcagatcc 3060
tgttctaccg ggagctggc ttcccgctcg acgaggtcgc cgccctgctc gacgacccgg 3120
ccgcggaccc ggcgcgcac ctgcggccgc accacgagct gctgtccgc cggatcggga 3180
aactgcagaa gatggcggcg gccgtggagc aggcgatgga ggcacgcagc atggaaatca 3240
acctcacccc ggaggagaag ttcgaggtct tcggcgactt cgaccccgac cagtacgagg 3300
aggaggtccg ggaacgctgg gggAACACCG acgcctaccg ccagtcgaag gagaagaccc 3360
cctcgtaac acaggaggac tggcagcgca tccaggacga ggccgacgag ctacccggc 3420
gcttcgtcgc cctgatggac gcgggtgagc cgcggactc cgagggggcg atggacgcgg 3480
ccgaggacca ccggcagggc atcgcccga accactacga ctgcgggtac gagatgcaca 3540
cctgcctggg cgagatgtac gtgtccgacg aacgtttcac gcgaaacatc gacgcccaca 3600
agccggcct cgcgcctac atgcgcgacg cgatcctcgc caacgcccgc cggcacaccc 3660
cctgagcgtt ggtcggtggcc cgggtctccc gcccggcttc accccacggc tcactccgg 3720
gccacgacca ccggcgtccc gtacgcgcac acctcggtgc ccacgtccgc cgcctccgc 3780
acgtcgaaac ggaaagatccc cgggtaccga gtcgtcagg tggcacttt cggggaaatg 3840
tgcgcggAAC ccctatttgc ttatTTTCT aaatacattc aaataatgtat ccgctcatga 3900
gacaataacc ctgataaaatg cttcaataat attgaaaaag gaagagtgatg agtattcaac 3960
atttccgtgt cgcgccttatt ccctttttgc cggcattttgc cttcctgtt ttgcgtcacc 4020
cagaaacgct ggtgaaagta aaagatgctg aagatcgtt gggtgacgaa gtgggttaca 4080
tcgaactgga tctcaacagc ggtaagatcc ttgagagttt tcggccccgaa gaacgttttc 4140
caatgatgag cactttaaa gttctgctat gtggcgccgtt attatcccgtt attgacgccc 4200
ggcaagagca actcggtcgc cgcatacact attctcagaa tgacttggtt gagtactcac 4260
cagtacacaga aaagcatctt acggatggca tgacagtaag agaattatgc agtgctgcca 4320
taaccatgag tgataaacact gcggccaact tacttctgac aacgatcgga ggaccgaagg 4380
agctaaccgc tttttgcac aacatggggg atcatgtaac tcgccttgat cgttggaaac 4440

cgagactgaa tgaagccata ccaaacgacg agcgtgacac cacgatgcct gtagcaatgg 4500
caacaacgtt gcgcaaacta ttaactggcg aactacttac tctagcttcc cggcaacaat 4560
taatagactg gatggaggcg gataaagttg caggaccact tctgcgctcg gcccttccgg 4620
ctggctggtt tattgctgat aaatctggag ccggtgagcg tgggtctcgc ggtatcattg 4680
cagcactggg gccagatggt aagccctccc gtatcgtagt tatctacacg acggggagtc 4740
aggcaactat ggatgaacga aatagacaga tcgctgagat aggtgcctca ctgattaagc 4800
attggtaact gtcagaccaa gtttactcat atatactta gattgattt aaacttcatt 4860
ttaatttaa aaggatctag gtgaagatcc ttttgataa tctcatgacc aaaatccctt 4920
aacgtgagtt ttcgttccac tgagcgtcag accccgtaga aaagatcaaa ggtatccctt 4980
gagatcctt tttctgcgc gtaatctgct gcttgcaaac aaaaaaacca ccgctaccag 5040
cggtggtttg ttggccggat caagagctac caactcttt tccgaaggta actggcttca 5100
gcagagcgca gataccaaat actgttcttc tagttagcc gtagtttaggc caccacttca 5160
agaactctgt agcaccgcct acataccctcg ctcgtctaatt cctgttacca gtggctgctg 5220
ccagtgccga taagtcgtt cttaccgggt tggactcaag acgatagttt ccggataagg 5280
cgcagcggc gggctgaacg ggggttcgt gcacacagcc cagcttggag cgaacgacct 5340
acaccgaact gagataccta cagcgtgagc tatgagaaag cgccacgctt cccgaaggga 5400
gaaaggcgga caggtatccg gtaagcggca gggtcggaac aggagagcgc acgagggagc 5460
ttccaggggg aaacgcctgg tatcttata gtcctgtcgg gtttgcaccc ctctgacttg 5520
agcgtcgatt ttgtgatgc tcgtcagggg ggcggagcct atggaaaaac gccagcaacg 5580
cgccctttt acggttccctg gcctttgct ggcctttgc tcacatgttcc ttccctgcgt 5640
tatccccgtt aaccgtttaa ccgcctttga gtgagctgat accgctcgcc 5700
gcagccgaac gaccgagcgc agcgagtcag tgagcgagga agcggaaagag cgcccaatac 5760
gcaaaccgcc tctccccgcg cgttggccga ttcatatcg cagctggcac gactagagtc 5820
ccgctgagggc ggcgttagcag gtcagccgcc ccagcgggtgg tcaccaaccg gggtggaacg 5880
gcccggat cgggtgtgtc cgtggcgctc attccaaacct ccgtgtgtt gtgcagggtt 5940
cgcgtgttgc agtccctcgc accggcaccc gcagcgaggg gctcacgggt gcccgggtt 6000
cgactagttc atcctcgaga tctaagcttg gatccgcggc cgctacgttag aattccata 6060
tggtgatggt gatggtgcc catggccgct cccttctctg acgcccgtcca cgctgcctcc 6120
tcacgtgacg tgaggtgcaa gcccggacgt tccgcgtgcc acgcccgtgag ccgcccgtg 6180
ccgtcggctc cctcagcccg ggccggccgtg ggagccccc tcgatatgtt caccggagaa 6240

gctcccagcg tcctccctggg ccgcgatact cgaccaccac gcacgcacac cgcaactaacg 6300
attcggccgg cgctcgatcc ggccggcgct cgattcgcc ggcgcgtcgat tcggccggcg 6360
ctcgattcgg ccggcgctcg attcggccga gcagaagagt gaacaaccac cgaccacgct 6420
tccgctctgc ggcgcgtacc cgacacct cccgcagcgtc gaagcagcgtc ccgggagtgac 6480
cgccgtactc acccgccctgt gctcaccatc caccgacgca aagcccaacc cgagcacacc 6540
tcttgcacca aggtgccgac cgtggcttgc cgctcgcagg gttccagaag aaatcgaacg 6600
atccagcgcg gcaagggttca aaaagcaggg gttgggggg aggagggttt ggggggtgtc 6660
gccgggatac ctgatatggc ttgttttgc gtatcgaaat aattttccat atagcctcgg 6720
cgcgtcggac tcgaatagtt gatgtggcg ggcacagtgt cccatgaaa tccgcaacgg 6780
ggggcgtgct gagcgtcgg caatggcggt atgcgggttt gcttccgcac cggccgttgc 6840
cgacgaacaa cctccaacga ggtcagttacc ggtatgagccg cgacgacgca ttggcaatgc 6900
ggtacgtcga gcattcaccg cacgcgttgc tcggatctat cgtcatcgac tgcgatcact 6960
ttgacgcccgc gatgcgcgca ttcgagcaac catccgacca tccggcgccg aactgggtcg 7020
cacaatcgcc gtccggccgc gcacacatcg gatggtggtt cggcccaac cacgtgtgcc 7080
gcaccgacag cgcccgactg acgccactgc gctacgccc ccgcacatcgaa accggcctca 7140
agatcagcgt cggcggcgat ttgcgtatg gcgggcaact gacaaaaac ccgatttcacc 7200
ccgattggga gacgatctac ggcccggcca cccctacac attgcggcag ctggccacca 7260
tccacacacc ccggcagatg ccgcgtcggc ccgatcgggc cgtggcctg ggccgcaacg 7320
tcaccatgtt cgacgccacc cggcgatggg cataccgca gtggtgcaaa caccgaaacg 7380
gaaccggccg cgactgggac catctcgcc tgcagcactg ccacgcccgtc aacaccgagt 7440
tcacgacacc actgcgttgc accgaagtac ggcgcaccgc gcaatccatc tccaaatgga 7500
tctggcgcaa tttcaccgaa gaacagtacc gagcccgaca agcgcacatc ggtcaaaaag 7560
gcggcaaggc aacgacactc gccaaacaag aagccgtccg aaacaatgca agaaagtacg 7620
acgaacatac gatgcgagag ggcgttatct gatgggcgga gacaaaaatc cggtgcgcgc 7680
aaagatgacg gcagcagcag cagccgaaaa attcggtgcc tccactcgca caatccaacg 7740
tctgtttgtt gagccgcgtg acgattaccc cggccgtcgg aaagctcgcc gtgacaaagc 7800
tgtcgagctg cggaaagcagg ggttgaagta ccgggaaatc ggcgaagcga tggactctc 7860
gaccgggatc gtcggccgat tactgcacga cggccgcagg cacggcgaga tttcagcgga 7920
ggatctgtcg gcgttaaccaa gtcagcgggt tgcgggttc cggccggcgc tcggcactcg 7980
gaccggccgg cggatgggtt tctgcctctg ggcgcagcgtc agctaccgccc gaaggcctgt 8040

catcgaccgg cttcgactga agtatgagca acgtcacagc ctgtgattgg atgatccgct 8100
cacgctcgac cgctacctgt tcagctgccg cccgctggc atgagcaacg gccaactctc 8160
gttcaa 8166

<210> 50

<211> 8169

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:vector pTip-NH2

<400> 50

gagctcgacc gcgcgggtcc cggacgggaa agagcgggaa gctttgccag agagcgacga 60
cttccccttg cgttgggtat tgccggtcag ggcagccatc cgccatcgic gcgttagggtg 120
tcacacccca ggaatcgctt cactgaacac agcagccgtt aggacgacca tgactgagtt 180
ggacaccatc gcaaatccgt ccgatcccgc ggtgcagcgg atcatcgatg tcaccaagcc 240
gtcacgatcc aacataaaga caacgtttagt cgaggacgtc gagccctca tgcacagcat 300
cgcggccggg gtggagttca tcgaggctta cggcagcgtc agcagtcctt ttccatctga 360
gttgctggat ctgtgcgggc ggcagaacat accggtccgc ctcatcgact cctcgatcg 420
caaccagtttgc ttcaaggggg agcggaaaggc caagacattc ggcacgcgtc gcgtccctcg 480
cccgccagg ttccggata tcgcgagccg gcgtggggac gtcgtcggtc tcgacgggt 540
gaagatcgic ggaaacatcg ggcgtatgt acgcacgtcg ctgcgtcg ggcgtcg 600
gatcatcctt gttggacatgt acatcaccag catcgccgtc cggcggtcc aaaggccag 660
ccgagggtac gtcttcctcc ttcccggtcgt tctctccgtt cgcgaggagg ccatcgccctt 720
cattcggttac agcgtatgc agctgtatgc gctcaaggcg gatggcgaca ttccgtgaa 780
ggaactcggtt gacaatccgg atcggctggc ctgtgtgtc ggcagcgaaa agggtggcc 840
ttccgacactt gtcgaggagg cgtttccgc ctgggtttcc atcccatgaa tgagccagac 900
cgagtctctc aacgtttccg ttccctcg aatcggtcg cacgagagga tcgacagggaa 960
tctcgccggcc aaccgataag cgcctctgtt cctcggtcgacgc tcggttccctc gacctcgatt 1020

cgtcagtatgat gatcacctca cacggcagcg atcaccactg acatatacgag gtcaacggtc 1080
gtggtccggg cgggcactcc tcgaaggcgc ggccgacgcc cttgaacgac tcgatgactc 1140
tagagtaacg ggctactccg ttaacggac cccgttctca cgctttaggc ttgaccccg 1200
agcctgcattg gggcattccg ccgtgaaccc ggtggaatgc ccccggcacc cgggcatttcc 1260
agcaaagatc acctggcgcc gatgagtaag gcgtacagaa ccactccaca ggaggaccgt 1320
cgagatgaaa tctaacaatg cgctcatcgt catcctcgcc accgtaccc tggatgctgt 1380
aggcataggc ttggatatgc cggtactgcc gggcctcttg cggatatgc tccattccga 1440
cagcatcgcc agtcaactatg gcgtgctgct agcgctatac gcgttgcgtc aatttctatg 1500
cgcacccgtt ctcggagcac tgtccgaccg cttggccgc cgcccaatgc tgctcgcttc 1560
gctacttgga gccactatcg actacgcgt catggcgacc acacccgtcc tgtggattct 1620
ctacgcccga cgcatcggtt cggcatcac cggcgccaca ggtgcggttg ctggcccta 1680
tatcgccgac atcaccgatg gggaaagatcg ggctgcccac ttgggtcata tgagcgcttg 1740
tttcggcgtt ggtatggtgg caggccccgt ggccggggga ctgttggcgc ccatctcctt 1800
gcatgcacca ttcccttgcgg cggcggtgct caacggcctc aacctactac tgggctgctt 1860
cctaattgcag gagtcgcata agggagagcg tcgtccgtatg cccttgcggag ccttcaaccc 1920
agtcaatcc tcgggttggg cgcggggcat gactatcgcc gccgcactta tgactgtctt 1980
ctttatcatg caactcgtag gacagggtgcc ggcagcgctc tgggtcattt tcggcgagga 2040
ccgctttcgc tggagcgcga cgtatgtcg cctgtcgctt gcggatttcg gaatttgcga 2100
cgccctcgct caaggcttcg tcactggtcc cgccacccaa cgtttgcggc agaagcaggc 2160
cattatcgcc ggcattggcgg ccgacgcgtt gggctacgtc ttgttggcgt tcgcgacgcg 2220
aggctggatg gccttccca ttatgattct tcgtcccttcc ggcggcatcg ggatgcccgc 2280
gttgcaggcc atgtgttcca ggcaggtaga tgacgaccat cagggacagc ttcaaggatc 2340
gctcgccgtt ctaccagcc taactcgat cattggaccc ctgtatcgta cggcgattta 2400
tgccgcctcg gcgagcacat ggaacgggtt ggcattggatt gtggcgccg ccctataacct 2460
tgtctgcctc cccgcgttgc gtcgcgggtgc atggagccgg gccacccgtc cctgaatgg 2520
agccggcggc acctcgctaa cggatttacc actccaaagaa ttggagccaa tcaatttttgc 2580
cgggagaactg tgaatgcgc aaccaaccct tggcagaaca tatccatcg tcggccatc 2640
tccagcagcc gcacgcggcg catctcggtt acgcgttgggt cctggccacg ggtgcgcgt 2700
atcgatgttcc tgcgttgag gactagaatt gatctccgtt accgccaatt gggcatctga 2760
gaatcatctg cggttctcgac acgcaacgtt ctgcacactt tgcaactcctt agtgttgtga 2820

atcacacccc accgggggggt gggattgcag tcaccgattt ggtgggtgcg cccaggaaga 2880
tcacgtttac ataggagctt gcaatgagct actccgtggg acaggtggcc ggcttcgccc 2940
gagtgacggt ggcacgctg caccactacg acgacatcg cctgctcgta ccgagcgagc 3000
gcagccacgc gggccaccgg cgctacagcg acgcccacct cgaccggctg cagcagatcc 3060
tggcttaccg ggagctggc ttcccgctcg acgaggtcgc cgccctgctc gacgaccgg 3120
ccgcggaccc ggcgcgcac ctgcgcgccc agcacgagct gctgtccgccc cggatcggga 3180
aactgcagaa gatggcggcg gccgtggagc aggcgatgga ggcacgcagc atggaatca 3240
acctcacccc ggaggagaag ttcgaggtct tcggcgactt cgaccccgac cagtacgagg 3300
aggaggtccg ggaacgctgg gggAACACCG acgcctaccg ccagtcggaa gagaagaccg 3360
cctcgtacac caaggaggac tggcagcgca tccaggacga ggccgacgag ctcacccggc 3420
gcttcgtcgc cctgtatggac gcgggtgagc ccgcccactc cgagggggcg atggacgccc 3480
ccgaggacca ccggcagggc atgcggcga accactacga ctgcgggtac gagatgcaca 3540
cctgcctggg cgagatgtac gtgtccgacg aacgtttcac gcgaaacatc gacgcccaca 3600
agccgggcct cgccgcctac atgcgcgacg cgatccgtc caacgcgtc cggcacaccc 3660
cctgagcggt ggtcggtggcc cgggtctccc gcccggtctc accccacggc tcactccgg 3720
gccacgacca ccgcgtccc gtacgcgcac acctcggtgc ccacgtccgc cgcctccgtc 3780
acgtcgaaac ggaagatccc cgggtaccga gctcgtcagg tggcacttt cggggaaatg 3840
tgcgcgaaac ccctattttgt ttatTTTCT aaatacattc aaatatgtat ccgctcatga 3900
gacaataacc ctgataaaatg cttcaataat attaaaaaag gaagagtatg agtattcaac 3960
atttccgtgt cgcccttatt ccctttttg cggcattttgc cttccctgtt ttgctcacc 4020
cagaaacgct ggtgaaagta aaagatgtg aagatcagg tggtgcacga gtgggttaca 4080
tcgaactgga tctcaacagc ggtaaagatcc ttgagagtt tcgcggcggaa gaacgtttc 4140
caatgatgag cactttaaa gttctgtat gtggcgccgt attatccgt attgacgccc 4200
ggcaagagca actcggtcgc cgcatacact attctcagaa tgacttggtt gagtactcac 4260
cagtcacaga aaagcatctt acggatggca tgacagtaag agaattatgc agtgcgtccca 4320
taaccatgag tgataacact gcggccaact tacttctgac aacgatcgga ggaccgaagg 4380
agctaaccgc ttTTTgcac aacatggggg atcatgtaac tcgccttgcgt cgttggaaac 4440
cgagactgaa tgaagccata ccaaacgacg agcgtgacac cacgatgcct gtagcaatgg 4500
caacaacgtt ggcacaaacta ttaactggcg aactacttac tctagcttcc cggcaacaat 4560
taatagactg gatggaggcg gataaagttg caggaccac tctgcgtcg gccctccgg 4620

ctggctggtt tattgctgat aaatctggag ccggtgagcg tgggtctcgc ggtatcattg 4680
cagcactggg gccagatggt aagccctccc gtatcgtagt tatctacacg acggggagtc 4740
aggcaactat ggatgaacga aatagacaga tcgctgagat aggtgcctca ctgattaagc 4800
attggtaact gtcagaccaa gtttactcat atatacttta gattgatttta aaacttcatt 4860
tttaatttaa aaggatctag gtgaagatcc ttttgataa tctcatgacc aaaatccctt 4920
aacgtgagtt ttcgttccac tgagcgtcag accccgtaga aaagatcaa ggatcttcctt 4980
gagatccttt tttctgcgc gtaatctgct gcttgcaaaac aaaaaaacca ccgctaccag 5040
cggtggtttt gggccggat caagagctac caactcttt tccgaaggta actggcttca 5100
gcagagcgca gataccaaat actgttcttc tagttagcc gtagtttaggc caccacttca 5160
agaactctgt agcaccgcct acataacctg ctctgctaat cctgttacca gtggctgctg 5220
ccagtgccga taagtctgtt cttaccgggt tggactcaag acgatagttt ccggataagg 5280
cgcagcggtc gggctgaacg ggggttcgt gcacacagcc cagcttggag cgaacgacct 5340
acaccgaact gagataccctt cagcgtgagc tatgagaaag cgcacgctt cccgaaggga 5400
gaaaggcgga caggtatccg gtaagcggca gggtcggaaac aggagagcgc acgagggagc 5460
ttccaggggg aaacgcctgg tatcttata gtcctgtcgg gtttcggccac ctctgacttg 5520
agcgtcgatt ttgtgatgc tcgtcagggg ggcggagcct atggaaaaac gccagcaacg 5580
cggcctttt acggttccctg gccttttgc ggccttttgc tcacatgttc ttccctgcgt 5640
tatccccctga ttctgtggat aaccgttatta ccgcctttga gtgagctgat accgctcgcc 5700
gcagccgaac gaccgagcgc agcgagtcag tgagcgagga agcggaaagag cgcacaaatac 5760
gcaaaccgcc tctccccgcg cttggccga ttcatatgc cagctggcac gactagagtc 5820
ccgctgagggc ggcgttagcag gtcagccgcc ccagcggtgg tcaccaaccg gggtggaacg 5880
gcgcggat cgggtgtgtc cgtggcgctc attccaaacct ccgtgtgttt gtgcagggtt 5940
cgcgtgttgc agtccctcgc accggcaccc gcagcgaggg gctcacgggt gcccgggtt 6000
cgactagttc atcctcgaga tctaagcttg gatccgcggc cgctacgttag aattccatg 6060
gcgtgatggt gatggtgatg gcccataatgc gtccttctt ctgacgcccgt ccacgctgcc 6120
tcctcacgtg acgtgagggtg caagcccgga cttccgcgt gcccacggcgt gagccggccgc 6180
tgccgtcgg ctccctcagc ccggccggcc gtgggagccc gcctcgatat gtacacccga 6240
gaagctccca gcgtcctcctt gggcccgat actcgaccac cacgcacgca caccgcacta 6300
acgattcggc cggcgctcga ttccggccggc gtcgattcg gcccggcgtc gattcggccg 6360
gcgctcgatt cggccggcgc tcgattcggc cgagcagaag agtgaacaac caccgaccac 6420

gcttccgctc tgccgcgt acccgaccta cctccgcag ctgcgcag ctccggag 6480
taccggcgtc ctcacccgccc tgtgctcacc atccaccgac gcaaagccca acccgagcac 6540
acctcttgcac ccaaggtgcc gaccgtggct ttccgctcgc agggttccag aagaaatcga 6600
acgatccagc gcggcaaggt tcaaaaagca ggggttggtg gggaggaggt ttgggggt 6660
gtcgccggaa tacctgatat ggctttgtt tgcgtagtcg aataatttc catatagcct 6720
cggcgcgtcg gactcgaata gttgatgtgg gcgggcacag ttgcggcatg aaatccgaa 6780
cggggggcgt gctgagcgat cggcaatggg cggatgcgtt gttgttccg caccggcgt 6840
tcgcgacgaa caaccctccaa cgaggtcagt accggatgag ccgcgacgac gcattggcaa 6900
tgcgtacgt cgagcattca ccgcacgcgt tgctcgatc tatcgatc gactgcgtc 6960
acgttgacgc cgcgtatgcgc gcattcgagc aaccatccga ccattccggcg ccgaactggg 7020
tcgcacaatc gccgtccggc cgccacaca tcggatggtg gctcgcccc aaccacgtt 7080
gccgcaccga cagcgcccgat ctgacgccac tgctacgc ccaccgcatt gaaaccggcc 7140
tcaagatcag cgtcgccggc gatttgcgt atggcggca actgacaaa aaccggattc 7200
accccgatttggagacgatc tacggcccgcc acccccgta cacattgcgg cagctggcca 7260
ccatccacac accccggcag atgcccgcgc ggcccgatcg ggccgtggc ctggccgca 7320
acgtcaccat gttcgacgccc acccgccgtt gggcataccc gcagtggtgg caacaccgaa 7380
acggaaccgg ccgcgactgg gaccatctcg tcctgcagca ctgccacgcc gtcaacaccg 7440
agtttcactgac accactgccc ttaccgaag tacgcgccac cgcgaatcc atctccaaat 7500
ggatctggcg caatttacc gaagaacagt accgagcccg acaagcgat ctggtaaaa 7560
aaggcggcaa ggcaacgaca ctgcacaaac aagaagccgt ccgaaacaat gcaagaaagt 7620
acgacgaaca tacgatgcga gaggcgatata tctgatggc ggagccaaaa atccggtgcg 7680
ccgaaagatg acggcagcag cagcagccga aaaattcggt gcctccactc gcacaatcca 7740
acgcttgcgtt gctgagccgc gtgacgatata cctcgccgt gcgaaagctc gccgtgacaa 7800
agctgtcgag ctgcggaaagc aggggttgaa gtaccggaa atgcggaaag cgtatggact 7860
ctcgaccggg atcgatcgcc gattactgca cgacgcccgc aggcacggcg agatttcagc 7920
ggaggatctg tcggcgtaac caagtgcgtt ggttgcggg ttccggccgg cgctcgccac 7980
tcggaccggc cggcggatgg tggatcgctt ctggcgacgc gtcagctacc gccgaaggcc 8040
tgtcatcgac cggcgtcgac tgaagtatga gcaacgtcac agcctgtgat tggatgatcc 8100
gctcactcgctc gaccgctacc tggatcgctt ccgcggcgtt ggcgtatgagca acggccaaact 8160
ctcgatcaa 8169

<210> 51
<211> 8160
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:vector pTip-CH1

<400> 51
gagctcgacc ggcgggtcc cggacgggaa agagcgggaa gctttgccag agagcgacga 60
cttcccttg cgttgtat tgccggtcag ggcagccatc cgccatcgic gcgtagggtg 120
tcacacccca ggaatcgct cactgaacac agcagccgtt aggacgacca tgactgagtt 180
ggacaccatc gcaaattccgtt ccgatccgc ggtgcagcgg atcatcgatg tcaccaagcc 240
gtcacgatcc aacataaaga caacgttgat cgaggacgtc gagccctca tgcacagcat 300
cgccggccggg gtggagttca tcgaggctta cggcagcgc acgagtcctt ttccatctga 360
gttgctggat ctgtcgccgc ggcagaacat accggccgc ctcatcgact cctcgatcgt 420
caaccagttt ttcagggggg agcggaaggc caagacattc ggcacgcgc gcgtccctcg 480
cccgccagg ttccggata tcgcgagccg gcgtggggac gtgcgttca tcgacgggt 540
gaagatcgic gggaaacatcg ggcgcataatg acgcacgtcg ctgcgcgtcg gagcgtcggg 600
gatcatccgtt gtggacatgt acatcaccag catcgccgc cggcgctcc aaaggccag 660
ccgagggttac gtcttcctcc ttcccgatgt tctctccgtt cgcgaggagg ccatcgccctt 720
cattcgccgc agcggtatgc agctgtatgc gctcaaggcg gatggcgaca ttccgtgaa 780
ggaaactcggg gacaatccgg atcggctggc ttgcgtgttc ggcagcgaaa agggtgggccc 840
ttccgacctg ttccgaggagg cgtcttcgc ctgcgtttcc atcccatga tgagccagac 900
cgagtcgtc aacgtttccg ttccctcgaa atcgccgtcg cacgagagga tcgacaggaa 960
tctcgccgc aaccgataag cgcctctgtt cctcgacgc tcggttccgc gacctcgatt 1020
cgtcagtatgt gatcacctca cacggcagcg atcaccactg acatatcgag gtcaacggtc 1080
gtggtccggg cgggcactcc tcgaaggcgc ggccgacgcc cttaacgcac tcgatgactc 1140
tagagtaacg ggctactccg tttaacggac cccgttctca cgctttaggc ttgaccccg 1200

agcctgcatg gggcattccg ccgtgaaccc ggtggaatgc cccggcacc cgggcattcc 1260
agcaaagatc acctggcgcc gatgagtaag gcgtacagaa ccactccaca ggaggaccgt 1320
cgagatgaaa tctaacaatg cgctcatcgt catcctcgcc accgtcaccc tggatgctgt 1380
aggcataggc ttggttatgc cggtactgcc gggcctcttg cggatatcg tccattccga 1440
cagcatcgcc agtcaactatg gcgtgctgct agcgctatat gcgttgatgc aatttctatg 1500
cgcacccgtt ctcggagcac tgcggaccg cttggccgc cgcccaagtcc tgctcgcttc 1560
gctacttggc gccactatcg actacgcgt catggcgacc acacccgtcc tgtggattct 1620
ctacgcccga cgcatcgtag cggtacgtcac cggcgccaca ggtgcggtg ctggcgctta 1680
tatcgccgac atcaccgtatg gggaaagatcg ggctcgccac ttggggctca tgagcgcttg 1740
tttcggcggt ggtatggtag caggccccgt ggccggggga ctgttggcgcc ccatctcctt 1800
gcatgcacca ttccattgcgg cggcggtgct caacggcctc aacctactac tgggctgctt 1860
cctaattgcag gagtcgcata agggagagcg tcgtccgtatg cccttggagag ccttcaaccc 1920
agtcaagctcc ttccgggtggg cgcggggcat gactatcg tcgtccgtt tgactgtctt 1980
ctttatcatg caactcgtag gacaggtgcc ggcagcgctc tgggtcattt tcggcgagga 2040
ccgcatttcgc tggagcgca cgatgatcg cctgtcgctt gcggatttcg gaatcttgc 2100
cgccctcgct caagcattcg tcactggtcc cgccaccaaa cgtttggcgcc agaagcaggc 2160
cattatcgcc ggcattggcgcc cgcacgcgt gggctacgtc ttgcgtggcgt tcgcgacgcg 2220
aggctggatg gccttccccca ttatgattct tctcgcttcc ggcggcatcg ggtatggccgc 2280
gttgcaggcc atgcgtgtcca ggcaggtaga tgacgaccat cagggacagc ttcaaggatc 2340
gctcgccggt cttaccagcc taacttcgtat cattggaccg ctgatcgta cggcgattta 2400
tgccgcctcg gcgagcacat ggaacgggtt ggcattggatt gtggcgccg ccctataacct 2460
tgtctgcctc cccgcgttgc gtcgcgttgc atggagccgg gccacctcgta cctgaatgg 2520
agccggcgcc acctcgctaa cggattcacc actccaagaa ttggagccaa tcaattcttg 2580
cgagagaactg tgaatgcgc aaccaaccct tggcagaaca tatccatcg tcgcgacgc 2640
tccagcagcc gcacgcggcg catctcggttgc agcgttgggt cctggccacg ggtgcgtatg 2700
atcgtgttcc tgcgttgcg gactagaatt gatctcctcg accgccaatt gggcatctga 2760
gaatcatctg cgtttctcgac acgcaacgtt cttgcacgt tgcaactcct agtgttgtga 2820
atcacaccc accgggggtt gggattgcag tcaccgattt ggtgggtgcg cccagggaa 2880
tcacgtttac ataggagctt gcaatgagct actccgtggg acaggtggcc ggcttcggcc 2940
gagtgacggt ggcacgcgtt caccactacg acgacatcg cctgcgtatc cggagcgagc 3000

gcagccacgc gggccaccgg cgctacagcg acgccgacct cgaccggctg cagcagatcc 3060
tgttctaccg ggagctggc ttcccgctcg acgaggctcg cgcctgctc gacgacccgg 3120
cccgccgaccc gcgccgcac ctgcgccgccc agcacgagct gctgtccgccc cggatcggga 3180
aactgcagaa gatggcggcg gccgtggagc aggcgatgga ggcacgcagc atggaatca 3240
accccacccc ggaggagaag ttgcaggatct tcggcgactt cgaccccgac cagtacgagg 3300
aggaggtccg ggaacgctgg gggAACACCG acgcctaccg ccagtccaaag gagaagacccg 3360
cctcgtacac caaggaggac tggcagcgca tccaggacga ggccgacgag ctcacccggc 3420
gcttcgtcgc cctgatggac gcgggtgagc cgcgcgactc cgagggggcg atggacgccc 3480
ccgaggacca ccggcagggc atgcggcga accactacga ctgcgggtac gagatgcaca 3540
cctgcctggg cgagatgtac gtgtccgacg aacgtttcac gcgaaacatc gacgcggcca 3600
agccgggcct cgccgcctac atgcgcgacg cgatcctcgc caacgcgtc cggcacaccc 3660
cctgagcgtt ggtcggtggcc cgggtctccc gcccggtctc accccacggc tcactccgg 3720
gccacgacca ccggcggtccc gtacgcgcac acctcggtgc ccacgtccgc cgcctccgtc 3780
acgtcgaaac ggaagatccc cgggtaccga gctcgtaagg tggactttt cggggaaatg 3840
tgcgcgaaac ccctatttgt ttattttct aaatacattc aaatatgtat ccgctcatga 3900
gacaataacc ctgataaatg cttaataat attaaaaaag gaagagtatg agtattcaac 3960
atttccgtgt cgcccttatt cccttttttgg cggcattttg ccttcctgtt tttgctcacc 4020
cagaaacgct ggtgaaagta aaagatgctg aagatcagg tggcacgtt gttgggttaca 4080
tcgaactgga tctcaacagc ggtaagatcc ttgagagttt tcggccggaa gaacgttttc 4140
caatgatgag cactttaaa gttctgtat gtggcgccgt attatccgt attgacgcgg 4200
ggcaagagca actcggtcgc cgcatacact attctcagaa tgacttggtt gagtactcac 4260
cagtcacaga aaagcatctt acggatggca tgacagtaag agaattatgc agtgctgcca 4320
taaccatgag tgataacact gcggccaaact tacttctgac aacgatcgga ggaccgaagg 4380
agctaaccgc tttttgcac aacatggggg atcatgtaac tcgccttgat cggtggaaac 4440
cggagctgaa tgaagccata ccaaacgacg agcgtgacac cacgatgcct gttagcaatgg 4500
caacaacgtt ggcgaaacta ttaactggcg aactacttac tctagcttcc cggcaacaat 4560
taatagactg gatggaggcg gataaagttt caggaccact tctgcgtcgc gcccctccgg 4620
ctggctgggtt tattgtgtt aaatctggag cgggtgagcg tgggtctcgc ggtatcattt 4680
cagcactggg gccagatggt aagccctccc gtatcgtagt tatctacacg acggggagtc 4740
aggcaactat ggatgaacga aatagacaga tcgctgagat aggtgcctca ctgattaagc 4800

attggtaact gtcagaccaa gtttactcat atatacttta gattgattta aaacttcatt 4860
ttaatttaa aaggatctag gtgaagatcc ttttgataa tctcatgacc aaaatccctt 4920
aacgtgagtt ttcgttccac tgagcgtcag accccgtaga aaagatcaaa gatatctt 4980
gagatcctt tttctgcgc gtaatctgct gcttgcaaac aaaaaaacca ccgctaccag 5040
cggtggtttg ttgccggat caagagctac caactcttt tccgaaggta actggcttca 5100
gcagagcgca gataccaaat actgttcttc tagttagcc gtagtttagc caccacttca 5160
agaactctgt agcaccgcct acataccctcg ctctgctaatt cctgttacca gtggctgctg 5220
ccagtgccga taagtcgtgt cttaaccgggt tggactcaag acgatagttt ccggataagg 5280
cgcagcggc gggctgaacg gggggttcgt gcacacagcc cagcttggag cgaacgacct 5340
acaccgaact gagataccta cagcgtgagc tatgagaaag cgcacgctt cccgaaggaa 5400
gaaaggcggaa caggtatccg gtaagcggca gggtcggaaac aggagagcgc acgagggagc 5460
ttccaggggg aaacgcctgg tatcttata gicctgtcgg gttcgccac ctctgactt 5520
agcgtcgatt tttgtatgc tcgtcagggg ggcggagcct atggaaaaac gccagcaacg 5580
cggcctttt acggttcctg gcctttgct ggcctttgc tcacatgtt 5640
tatccccctga ttctgtggat aaccgtattt ccgccttta gttgactgtat accgctcgcc 5700
gcagccgaac gaccgagcgc agcgagtcag tgagcgagga agcggaaagag cgcccaatac 5760
gcaaaccgccc tctccccgca cggtggccga ttcatatgc cagctggcac gactagagtc 5820
ccgctgaggc ggcgtagcag gtcagccgccc ccagcgggtgg tcaccaaccg gggtggaaacg 5880
gcgcggat cgggtgtgtc cgtggcgctc attccaaacct ccgtgtgtt gtgcaggttt 5940
cgcgtgttgc agtccctcgc accggcaccc gcagcgaggg gtcacgggt gcccgggtt 6000
cgactagttc agtgtatggtg atggatgtt cctcgagatc taagcttggta tccgcggccg 6060
ctacgtagaa ttccatggc cgctcccttc tctgacgccc tccacgctgc ctccctcacgt 6120
gacgtgaggt gcaagcccg acgttccgca tgccacgccc tgagccgccc cgtgcccgt 6180
gctccctcag cccggccggc cgtgggagcc cgcctcgata tgtacacccg agaagctccc 6240
agcgtccctcc tggccgcga tactcgacca ccacgcacgc acaccgcact aacgattcgg 6300
ccggcgctcg attcggccgg cgctcgattt ggccggcgtcgat cgattcggcc ggcgctcgat 6360
tcggccggcg ctgcatttgcg ccgagcagaa gagtgaacaa ccaccgacca cgcttccgct 6420
ctgcgcgcg taccgcacct acctccgc gctcgaagca gtcggggaa gtaccggcgt 6480
actcaccgcg ctgtgctcac catccaccga cgaaagccc aaccgcgac caccttgc 6540
accaagggtgc cgaccgtggc ttccgctcg cagggttcca gaagaaatcg aacgatccag 6600

cgcgcaagg ttcaaaaagc aggggttgtt ggggaggagg tttgggggg tgtcccccggg 6660
atacctgata tggctttgtt ttgcgtagtc gaataattt ccatatagcc tcggcgctc 6720
ggactcgaat agttatgtg ggccggcaca gttccccat gaaatccgca acggggggcg 6780
tgctgagcga tcggcaatgg gcggatgcgg tttgccttc gcaccggccg ttgcgcacga 6840
acaacctcca acgaggtcag taccggatga gccgcacga cgcattggca atgcgttacg 6900
tcgagcattc accgcacgctt tgcgtcgat ctatgtcat cgactgcgtat cacgttgcacg 6960
ccgcgtatgcg cgcattcgag caaccatccg accatccggc gccgaactgg gtcgcacaat 7020
cgccgtccgg ccgcgcacac atcgatgtt ggctcgccca accaccatgt tgccgcacccg 7080
acagcgcccg actgacgcca ctgcgttacg cccaccgtat cgaaaccggc ctcaagatca 7140
gcgtcgccgg cgatttcgat tatggcgccg aactgaccaaa aaaccggatt cacccggatt 7200
gggagacgt ctacggcccg gccacccgtt acacattgcg gcagctggcc accatccaca 7260
cacccggca gatgccgcgt cggccgtatc gggccgtggg cctggccgc aacgtcacca 7320
tttcgacgc caccggcga tggcatacc cgcagtggt gcaacaccga aacggaaaccg 7380
gccgcgactt ggaccatctc gtcctgcagc actgccacgc cgtcaacacc gagttcacga 7440
caccactgcc gttcaccgaa gtacgcgcca ccgcgaatc catctccaaa tggatctggc 7500
gcaatttcac cgaagaacag taccgagccc gacaagcgca tctggtaaa aaaggcggca 7560
aggcaacgac actcgccaaa caagaagccg tccgaaacaa tgcaagaaag tacgacgaac 7620
atacgtatgcg agaggcgatt atctgatggg cggagccaaa aatccgggtc gccgaaagat 7680
gacggcagca gcagcagccg aaaaattcgg tgcctccact cgcacaatcc aacgcttgc 7740
tgctgagccg cgtgacgatt acctcgcccg tgcgaaagct cgcgtgaca aagctgtcga 7800
gctgcggaag caggggttga agtaccggaa aatcgccgaa gcgatggaaac tctcgaccgg 7860
gatcgctggc cgattactgc acgacgccccg caggcacggc gagatttcag cggaggatct 7920
gtcggcgtaa ccaagtgcgc gggttgtcgg gttccggccg ggcgtcggca ctcggaccgg 7980
ccggcggatg gtgttctgcc tctggcgcag cgtcagctac cgcgaaggc ctgtcatcga 8040
ccggcttcga ctgaagtatg agcaacgtca cagcctgtga ttggatgatc cgctcacgct 8100
cgaccgctac ctgttcagct gccgccccgtt gggcatgagc aacggccaaac tctcggttcaa 8160

<210> 52

<211> 8160

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:vector pTip-CH2

<400> 52

gagctcgacc gcgcgggtcc cggacgggga agagcgggga gcttgcac 60
cttcccttg cggtggat tgccggtcag ggcagccatc cgccatcg 120
tcacacccca ggaatcgct cactgaacac agcagccgt aggacgacca tgactgagtt 180
ggacaccatc gcaaattccgt ccgatccgc ggtgcagcgg atcatcgatg tcaccaagcc 240
gtcacgatcc aacataaaga caacgttgat cgaggacgtc gagccctca tgcacagcat 300
cgccggccggg gtggagttca tcgaggctca cggcagcgtc agcagtcc 360
tttgctggat ctgtcgccgc ggcagaacat accggccgc ctcatcgact cctcgatcg 420
caaccagttt tcaagggggg agcggaaggc caagacattc ggcattcgccc gcgtccctcg 480
cccgccagg ttcggcgata tcgcaaggccg gcgtggggac gtcgtcg 540
gaagatcgatc gggaaacatcg ggcgtatgt acgcacgtcg ctgcgcctcg gagcgtcggg 600
gatcatccgt gtggacatgt acatcaccag catcgccgac cggcgctcc aaaggccag 660
ccgaggttac gtcttctccc ttcccgatgt tctctccgt cgcgaggagg ccatcgctt 720
cattcgccgac agcggtatgc agctgtatgc gctcaaggcg gatggcgaca ttccgtgaa 780
ggaactcggtt gacaatccgg atcggctggc ctgtgttc ggcagcgaaa agggggcc 840
ttccgaccgt ttcgaggagg cgtcttccgc ctgcgttcc atcccatga tgagccagac 900
cgagtcttc aacgtttccg ttccctcg aatcgccgtc cacgagaggaa tcgacaggaa 960
tctcgccggc aaccgataag cgcctctgtt cctcgacgc tcggttccgc gacctcgatt 1020
cgtcgtatgt gatcacatca cacggcagcg atcaccactg acatatcgatgtc 1080
gtggccggg cgggcactcc tcgaaggcgc ggcgcacgccc cttgaacgac tcgatgactc 1140
tagagtaacg ggctactccg tttaacggac cccgttctca cgctttaggc ttgacccgg 1200
agcctgcgt gggcattccg ccgtgaaccc ggtggatgc cccggcacc cggccttcc 1260
agcaaagatc acctggcgcc gatgagtaag gcgtacagaa ccactccaca ggaggaccgt 1320
cgagatgaaa tctaacaatg cgctcatcgatcatcgtc accgtcaccc tggatgactc 1380
aggcataggc ttggttatgc cggtactgcc gggcctcttg cggatatcg tccattccga 1440

cagcatcgcc agtcaactatg gcgtgctgct agcgctataat gcgttcatgc aatttctatg 1500
cgcacccgtt ctcggagcac tgtccgaccg ctttggccgc cgcccagtcc tgctcgcttc 1560
gctacttggg gccactatcg actacgcgtat catggcgacc acacccgtcc tgtggattct 1620
ctacgcccggaa cgcatcgtag ccggcatcac cggcgccaca ggtgcgggtt ctggcgccata 1680
tatcgccgac atcaccgtatgg gggaaagatcg ggctcgccac ttctgggtca tgagcgcttg 1740
tttcggcgtag ggtatgggtgg caggccccgt ggccggggga ctgttggcgccatctt 1800
gcatgcacca ttcccttgcgg cggcggtgct caacggccctc aacctactac tgggtcgctt 1860
cctaattgcag gagtcgcata agggagagcg tcgtccgtat cccttggagag ccttcaaccc 1920
agtcaagctcc ttccgggtggg cgccgggcat gactatcgatc gcccactta tgactgtctt 1980
ctttatcatg caactcgtag gacaggtgcc ggcagcgctc tgggtcattt tcggcgagga 2040
ccgccttcgc tggagcgcga cgatgtatcg cctgtcgctt gcggtattcg gaatcttgcga 2100
cgccctcgct caagccctcg tcactggatcc cgccacccaa cgtttgcggcg agaagcaggc 2160
cattatcgcc ggcattggcg ccgacgcgtt gggctacgtc ttgttggcgatcg tgcgcacgcg 2220
aggctggatg gccttccccca ttatgattct tctcgcttcc ggcggcatcg ggtatggccgc 2280
gttgcaggcc atgcgtgtcca ggcaggtaga tgacgaccat cagggacagc ttcaaggatc 2340
gctcgccgtt cttaccagcc taacttcgtat cattggaccg ctgatcgatca cggcgattta 2400
tgccgcctcg gcgagcacat ggaacgggtt ggcattggatt gtggcgccg ccctataacct 2460
tgtctgcctc cccgcgttgc gtcgcgggtgc atggagccgg gccacctcgatc cctgaatgg 2520
agccggcgcc acctcgctaa cggattcacc actccaagaa ttggagccaa tcaatttttg 2580
cgagagaactg tgaatgcgcgaa aaccaaccct tggcagaaca tatccatcgatc gtccggccatc 2640
tccagcagcc gcacgcggcg catctgggc acgttgggtt cctggccacg ggtgcgcgtt 2700
atcgtgtcc tgcgtttag gactagaatt gatctctcg accgccaatt gggcatctga 2760
gaatcatctg cgtttctcgatc acgcaacgtt ctgtcaacgt tgcaactctt agtgttgtga 2820
atcacaccc accgggggggtt gggattgcgtt tcaccgtttt ggtgggtgcg cccaggaaga 2880
tcacgtttac ataggagctt gcaatgagct actccgtggg acaggtggcc ggcttcgcgg 2940
gagtgcacgtt ggcacgcgtt caccactacg acgacatcg cctgcgtatc cggagcgagc 3000
gcagccacgc gggccaccgg cgctacagcg acgcccaccc cgaccggctg cagcagatcc 3060
tgttctaccg ggagctgggc ttcccgctcg acgaggtgcg cgcctcgatc gacgaccgg 3120
ccgcggaccc ggcgcgcac ctgcgcgcac agcagcgtt gctgtccgc cggatcgaa 3180
aactgcagaa gatggcgccg ggcgtggagc aggcaatcgatc ggcacgcagc atggaaatca 3240

acctcacccc ggaggagaag ttcgagggtct tcggcgactt cgaccccgac cagtacgagg 3300
aggaggtccg ggaacgctgg gggAACACCG acgcctaccg ccagtccaag gagaagacccg 3360
cctcgtacac caaggaggac tggcagcgca tccaggacga ggccgacgag ctcacccggc 3420
gcitcgtcgc cctgatggac gcgggtgagc cgcggactc cgagggggcg atggacgccc 3480
ccgaggacca ccggcaggc atcgccgca accactacga ctgcgggtac gagatgcaca 3540
cctgcctggg cgagatgtac gtgtccgacg aacgtttcac gcgaaacatc gacgcccaca 3600
agccgggcct cgcgcctac atgcgcgacg cgatcctcgc caacgcccgc cggcacaccc 3660
cctgagcggt ggtcgtggcc cgggtctccc gcccggtctc accccacggc tcactccgg 3720
gccacgacca ccggcgtccc gtacgcgcac acctcggtgc ccacgtccgc cgcctccgc 3780
acgtcgaaac ggaagatccc cgggtaccga gctcgtcagg tggactttt cggggaaatg 3840
tgcgcggaac ccctatttgc ttattttct aaatacatc aaatatgtat ccgctcatga 3900
gacaataacc ctgataaatg ctcaataat attaaaaaag gaagagtatg agtattcaac 3960
atttcgtgt cgccttatt cccttttg cggcattttgc cttcctgtt ttgcgtcacc 4020
cagaaacgct ggtgaaagta aaagatgctg aagatcagg gggtcacga gtgggttaca 4080
tcgaactgga tctcaacagc ggtaagatcc ttgagagtt tcgccccgaa gaacgttttgc 4140
caatgatgag cactttaaa gttctgctat gtggcgcggt attatccgt attgacgccc 4200
ggcaagagca actcggtcgc cgcatacact attctcagaa tgacttgggt gagtactcac 4260
cagtcacaga aaagcatctt acggatggca tgacagtaag agaattatgc agtgctgcca 4320
taaccatgag tgataacact gcggccaaact tacttctgac aacgatcgga ggaccgaagg 4380
agctaaccgc tttttgcac aacatggggg atcatgtaac tcgccttgat cggtggaaac 4440
cgagactgaa tgaagccata ccaaacgacg agcgtgacac cacgatgcct gtagcaatgg 4500
caacaacgtt gcgcaaacta ttaactggcg aactacttac tctagcttcc cggcaacaat 4560
taatagactg gatggaggcg gataaagttg caggaccact tctgcgcctcg gccctccgg 4620
ctggctgggt tattgctgat aaatctggag cgggtgagcg tgggtctcgc ggtatcatttgc 4680
cagcactggg gccagatggt aagccctccc gtatcgtat tatctacacg acggggagtc 4740
aggcaactat ggatgaacga aatagacaga tcgctgagat aggtgcctca ctgatataac 4800
attggtaact gtcagaccaa gtttactcat atatacttta gattgatttta aaacttcatttgc 4860
tttaattttaa aaggatctag gtgaagatcc ttttgataa tctcatgacc aaaatccctt 4920
aacgtgagtt ttgcgttccac tgagcgtcag accccgtaga aaagatcaaa ggatcttctt 4980
gagatcctt tttctgcgc gtaatctgct gcttgcaaac aaaaaacca ccgctaccag 5040

cggtggtttg tttgccggat caagagctac caactcttt tccgaaggta actggctca 5100
gcagagcgca gataccaaat actgttcttc tagtgttagcc gtagtttaggc caccacttca 5160
agaactctgt agcaccgcct acataccctcg ctctgctaatt cctgttacca gtggctgctg 5220
ccagtggcga taagtctgtt cttaccgggt tggactcaag acgatagttt ccggataagg 5280
cgcagcggic gggctgaacg ggggggtcgt gcacacagcc cagcttggag cgaacgacct 5340
acaccgaact gagataccta cagcgtgagc tatgagaaag cgccacgctt cccgaaggga 5400
gaaaggcggaa caggtatccg gtaagcggca gggtcggaaac aggagagcgc acgagggagc 5460
ttccaggggg aaacgcctgg tatcttata gtcctgtcgg gtttcgccac ctctgacttg 5520
agcgtcgatt ttgtgtatgc tcgtcaggggg ggcggagcct atggaaaaac gccagcaacg 5580
cggcctttt acggttcctg gcctttgct ggcctttgc tcacatgttc ttccctgcgt 5640
tatccccctga ttctgtggat aaccgtattt ccgcctttga gtgagctgat accgctcgcc 5700
gcagccgaac gaccgagcgc agcgagtcag tgagcgagga agcggaaagag cgcccaatac 5760
gcaaaccgccc tctcccccgcg cgttggccga ttcatatc cagctggcac gactagagtc 5820
ccgcgtgagggc ggcgttagcag gtcagccgccc ccagcggtgg tcaccaaccg gggtggaacg 5880
gcgcggat cgggtgtgtc cgtggcgctc attccaaacct ccgtgtgtt gtgcagggtt 5940
cgcgtgttgc agtccctcgc accggcaccc gcagcgaggg gtcacgggt gccggtggtt 6000
cgactagttc agtgtatggtg atgggtatgt cctcgagatc taagcttggta tccgcggccg 6060
ctacgtagaa ttcccatatg cgctcccttc tctgacgccc tccacgctgc ctccctcacgt 6120
gacgtgaggt gcaagcccgacgttcccgcg tgccacgccc tgagccgccc cgtgccgtcg 6180
gctccctcag cccggcgccg cgtggagcc cgcctcgata tgtacaccgg agaagctccc 6240
agcgtccctcc tggcccgca tactcgacca ccacgcacgc acaccgact aacgattcgg 6300
ccggcgctcg attcggccgg cgctcgattt ggccggcgct cgattcggcc ggcgtcgat 6360
tcggccggcg ctcgatttgcg ccgagcagaa gagtgaacaa ccacgcacca cgcttccgct 6420
ctgcgcgccc taccgcacct acctcccgca gtcgaagca gtcacgggtt gtaccggcg 6480
actcaccgcg ctgtgtcac catccaccga cgcaaagccc aacccgagca cacctttgc 6540
accaagggtgc cgaccgtggc ttccgcgtcg cagggttcca gaagaaatcg aacgatccag 6600
cgccggcaagg ttcaaaaagc aggggttggt ggggaggagg tttgggggg tgcgcgggg 6660
atacctgata tggctttgtt ttgcgtatgc gaataattt ccatatagcc tcggcgctc 6720
ggactcgaat agttgtatgtt ggcggggcaca gttgccccat gaaatccgca acggggggcg 6780
tgctgagcga tcggcaatgg gcggatgcgg tttgcgttcc gcaccggccg ttgcgcacga 6840

acaaccctcca acgaggatcg taccggatga gccgcgacga cgcattggca atgcggtagc 6900
tcgagcattc accgcacgat ttgctcgat ctatcgat cgactgcgat cacgttgacg 6960
ccgcgatgatcg cgcattcgag caaccatccg accatccggc gccgaactgg gtcgcacaat 7020
cgccgtccgg ccgcgcacac atcgatggt ggctcgccca accacacgtg tgccgcacccg 7080
acagcgccccg actgacgcca ctgcgctacg cccaccgcatt cgaaccggc ctcaagatca 7140
gcgtcgccgg cgatttcgat tatggcgggc aactgaccaa aaaccggatt cacccggatt 7200
gggagacgat ctacggcccg gccacccgt acacattgcg gcagctggcc accatccaca 7260
cacccggca gatgccgcgt cggccgcatt gggccgtggg cctggccgc aacgtcacca 7320
tgttcgacgc caccggcga tggcatacc cgcagtggtg gcaacacccg aacggaaaccg 7380
gccgcgactg ggaccatctc gtcctgcagc actgccacgc cgtcaacacc gagttcacga 7440
caccactgcc gttcaccgaa gtacgcgcacccgcgcaatc catctccaaa tggatctggc 7500
gcaatttcac cgaagaacag taccgagccc gacaagcgca tctcggtcaa aaaggcggca 7560
aggcaacgac actcgccaaa caagaagccg tccgaaacaa tgcaagaaag tacgacgaac 7620
atacgatgcg agagggcgatt atctgatggg cggagccaaa aatccggatgc gccgaaagat 7680
gacggcagca gcagcagccg aaaaattcgg tgcctccact cgcacaatcc aacgcttgtt 7740
tgctgagccg cgtgacgatt acctcgcccg tgcgaaagct cggccgtgaca aagctgtcga 7800
gctgcggaag caggggttga agtaccggaa aatcgccgaa gcgatggaaac tctcgaccgg 7860
gatcgatcgatcg cgttactgc acgacgccccg caggcacggc gagatttcag cggaggatct 7920
gtcggcgtaa ccaagtcaac gggttgtcgg gttccggccg ggcgtcgca ctggaccgg 7980
ccggcgatg gtgttctgcc tctggcgat cgtcagctac cggccgaaggc ctgtcatcga 8040
ccggcttcga ctgaagtatg agcaacgtca cagccgtgat tggatgtatc cgctcacgct 8100
cgaccgcctac ctgttcagct gcccggccgtt gggcatgagc aacggccaaac tctcggttcaa 8160

210 53

211 8189

<212> DNA

<213> Artificial Sequence

220

〈223〉 Description of Artificial Sequence:vector

pTip-LNH1

<400> 53

gagctcgacc ggcgggtcc cggacgggga agagcgggga gcttgcac 60
cttcccttg cgttgggtat tgccggtcag ggcagccatc cgccatcgatc gcgttagggt 120
tcacacccca ggaatcgct cactgaacac agcagccgtt aggacgacca tgactgagtt 180
ggacaccatc gcaaattccgt ccgatccgc ggtgcagcgg atcatcgatg tcaccaagcc 240
gtcacgatcc aacataaaga caacgttgc cggagacgtc gagccctca tgcacagcat 300
cgccggccggg gtggagttca tcgaggtcta cggcagcgc acgagtcctt ttccatctga 360
gttgtggat ctgtgcggc ggcagaacat accggccgc ctcatcgact cctcgatcg 420
caaccagttt tcaaggggg agcggaaggc caagacattc ggcattccgc gctccctcg 480
cccgccagg ttcggcgata tcgagccgc gcgtggggac gtcgtcgatc tcgacgggt 540
gaagatcgatc gggaaacatcg ggcgatagt acgcacgtc ctcgcgtcg gagcgtcggg 600
gatcatccgt gtggacagtgc acatcaccag catcgccgc cggcgatcc aaaggccag 660
ccgagggttac gtctctccc ttcccgatc tctctccgtt cgcgaggagg ccatcgctt 720
cattcgccggc agcggtatgc agctgtatgc gctcaaggcg gatggcgaca ttccgtgaa 780
ggaactcgcc gacaatccgg atcggctggc ttgcgtgtc ggcagcgaaa agggtggcc 840
ttccgaccgt ttcgaggagg cgtctccgc ctcggtttcc atcccatga tgagccagac 900
cgagtcttc aacgtttccg ttccctcgaa atcgcgtcg cacgagagga tcgacaggaa 960
tctcgccggc aaccgataag cgcctctgtt ctcggacgc tcggttccgc gacctcgatt 1020
cgtagtgcgtatc gatcacatca cacggcagcg atcaccactg acatatcgatc gtcaacggc 1080
gtggccggg cgggcactcc tcgaaaggcgc ggccgacgcc cttgaacgc tcgatgactc 1140
tagagtaacg ggctactccg tttaacggac cccgttctca cgcgttaggc ttgacccgg 1200
agcctgcattg gggcattccg ccgtgaaccc ggtggaaatgc cccggcacc cgggcttcc 1260
agcaaaatgc acctggcgcc gatgagtaag gcgtacagaa ccactccaca ggaggaccgt 1320
cgagatgaaa tctaacaatgc cgctcatcgatc ctcgtcgac accgtcaccc tggatgctgt 1380
aggcataggc ttggttatgc cggtaatgc cggcctcttg cggatatgc tccatccga 1440
cagcatcgcc agtcaatgc gcgtgtcgatc agcgatatac gcgttgcgtatc aatttctatc 1500
cgccaccgtt ctcggagcac tgcgtcgac cttggccgc cggccgtcc tgcgtcgatc 1560
gctacttggc gccactatgc actacgcgtatc catggcgacc acacccgtcc tgcgtcgatc 1620
ctacgcccggc cgcgtcgatc cggcgtccac cggcgccaca ggtgcgggttgc ctggcccta 1680

tatcgccgac atcaccgatg gggaaagatcg ggctcgccac ttctggctca tgagcgcttg 1740
tttcggcgtg ggtatggtgg caggccccgt ggccggggga ctgttggcg ccatctcctt 1800
gcatgcacca ttcccttgcgg cggcggtgct caacggcctc aacctactac tgggctgctt 1860
ccttaatgcag gagtcgcata agggagagcg tcgtccgatg ccctttagagag cttcaaccc 1920
agtcagcicc ttccggtggtt cgccgggcat gactatcgic gccgcactta tgactgtctt 1980
ctttatcatg caactcgtag gacaggtgcc ggcagcgctc tgggtcattt tcggcgagga 2040
ccgccttcgc tggagcgcga cgatgatcg cctgtcgctt gcggtaatcg gaatcttgca 2100
cgccctcgct caagccctcg tcactggtcc cgccaccaaa cgtttgcgcg agaagcaggc 2160
cattatcgcc ggcattggcgg ccgacgcgtt gggctacgtc ttgttggcgt tcgcgacgcg 2220
aggctggatg gccttccccca ttatgattct tctcgcttcc ggccgtatcg ggtatccccgc 2280
gttgcaggcc atgctgtcca ggcaggtaga tgacgaccat cagggacagc ttcaaggatc 2340
gctcgccgtt cttaccagcc taacttcgtat cattggaccg ctgtatcgta cgccgattta 2400
tgccgcctcg gcgagcacat ggaacgggtt ggcattggatt gtaggcgcgg ccctataacct 2460
tgtctgcctc cccgcgttgc gtcgcggtgc atggagccgg gccacctcga cctgaatgg 2520
agccggcggc acctcgctaa cggattcacc actccaagaa ttggagccaa tcaatttttg 2580
cgagagaactg tgaatgcgc aaccaaccct tggcagaaca tatccatcg tcgcgcac 2640
tccagcagcc gcacgcggcg catctcggtt agcgttgggt cctggccacg ggtgcgcac 2700
atcgtgtcc tgcgtttag gactagaatt gatctccctcg accgccaatt gggcatctga 2760
gaatcatctg cgtttctcg acgcaacgtt ctgtcaacgt tgcaactcct agtgttgtga 2820
atcacacccc accggggggtt gggattgcag tcaccgattt ggtgggtgcg cccaggaaga 2880
tcacgtttac ataggagctt gcaatgagct actccgtggg acaggtggcc ggcttcgcgg 2940
gagtgacggt gcgcacgctg caccactacg acgacatcg cctgtcgta ccgagcgagc 3000
gcagccacgc gggccaccgg cgctacagcg acgcccaccc cgaccggctg cagcagatcc 3060
tgttctaccg ggagctggc ttcccgctcg acgaggtcg cgcctcgctc gacgaccgg 3120
ccgcggaccc gcgcgcgcac ctgcgcgcgc acgacgagct gctgtccgcg cggatcg 3180
aactgcagaa gatggcggcg gccgtggagc aggcgatgga ggcacgcagc atggaaatca 3240
acctcacccc ggaggagaag ttgcaggatct tcggcgactt cgaccccgac cagtacgagg 3300
aggaggtccg ggaacgcgtt gggaaacaccg acgcctaccg ccagtccaaag gagaagaccg 3360
cctcgtaacac caaggaggac tggcagcgca tccaggacga ggccgacgag ctcacccggc 3420
gcttcgtcgc cctgtatggac gcgggtgagc ccgcccgcactc cgagggggcg atggacgcgc 3480

ccgaggacca ccggcaggc atcgccgca accactacga ctgcgggtac gagatgcaca 3540
cctgcctggg cgagatgtac gtgtccgacg aacgtttcac gcgaaacatc gacgcccaca 3600
agccgggcct cgccgcctac atgcgcgacg cgatcctcgc caacgcccgtc cggcacacccc 3660
cctgagcggt ggtcggtggcc cgggtctccc gcccggtctc accccacggc tcactccgg 3720
gccacgacca cgcgcgtccc gtacgcgcac acctcggtgc ccacgtccgc cgcctccgtc 3780
acgtcgaaac ggaagatccc cgggtaccga gctcgtaagg tggactttt cggggaaatg 3840
tgcgcgaaac ccctatttgt ttattttct aaatacatc aaatatgtat ccgctcatga 3900
gacaataacc ctgataaaatg cttcaataat attaaaaaag gaagagtatg agtattcaac 3960
atttccgtgt cgccttatt cccttttg cggcatttg cctcctgtt tttgctcacc 4020
cagaaacgct ggtgaaagta aaagatgctg aagatcgtt ggggcacga gtgggttaca 4080
tcgaactgga tctcaacagc ggtaagatcc ttgagagtt tcgccccgaa gaacgttttc 4140
caatgatgag cactttaaa gttctgctat gtggcgcgtt attatccgtt attgacgccc 4200
ggcaagagca actcggtcgc cgcatacact attctcagaa tgacttgggtt gagtactcac 4260
cagtacaga aaagcatctt acggatggca tgacagtaag agaattatgc agtgctgcca 4320
taaccatgag tgataaacact gcggccaact tacttctgac aacgatcggaa ggaccgaagg 4380
agctaaccgc tttttgcac aacatggggg atcatgtaac tcgccttgat cgttggaac 4440
cgaggctgaa tgaagccata ccaaacgacg agcgtgacac cacgatgcct gttagcaatgg 4500
caacaacgtt gcgcaaacta ttaactggcg aactacttac tctagcttcc cggcaacaat 4560
taatagactg gatggaggcg gataaagtgg caggaccact tctgcgtcg gcccttccgg 4620
ctggctgggtt tattgctgtat aaatctggag cgggtgagcg tgggtctcgc ggtatcattt 4680
cagcactggg gccagatgggt aagccctccc gtatcgtagt tatctacacg acggggagtc 4740
aggcaactat ggatgaacga aatagacaga tcgctgagat aggtgcctca ctgattaagc 4800
attggtaact gtcagaccaa gtttactcat atatacttta gattgattta aaacttcatt 4860
tttaatttaa aaggatcttag gtgaagatcc ttttgataa tctcatgacc aaaatccctt 4920
aacgtgagtt ttcgttccac tgagcgtcag accccgtaga aaagatcaaa ggatcttctt 4980
gagatccctt tttctgcgc gtaatctgtc gcttgcaaac aaaaaaaccac cgcgtaccag 5040
cggtggtttt gttggccggat caagagctac caactcttt tccgaaggta actggcttca 5100
gcagagcgcga gataccaaat actgttcttc tagttagcc gtatgttaggc caccacttca 5160
agaactctgt agcaccgcct acataacctg ctctgctaat cctgttacca gtggctgctg 5220
ccagtggcga taagtctgtt ttaccgggt tggactcaag acgatagttt ccggataagg 5280

cgcagcggtc gggctgaacg gggggttcgt gcacacagcc cagcttggag cgaacgacct 5340
acaccgaact gagataccta cagcgtgagc tatgagaaaag cgccacgc tt cccgaaggga 5400
gaaaggcggga caggtatccg gtaagcggca gggtcggaac aggagagcgc acgagggagc 5460
ttccaggggg aaacgcctgg tatcttata gtcctgtcgg gtttcgccac ctctgacttg 5520
agcgtcgatt ttgtgtatgc tcgtcagggg ggcggagcct atgaaaaac gccagcaacg 5580
cggcctttt acggttcctg gcctttgct ggcctttgc tcacatgttc ttccctgcgt 5640
tatccccgtga ttctgtggat aaccgtattt ccgccttiga gtgagctgtat accgctcgcc 5700
gcagccgaac gaccgagcgc agcgagttag tgagcggagga agcggaaagag cgcccaatac 5760
gcaaaccgccc tctccccgctg cggtggccga ttcatatgc cagctggcac gactagagtc 5820
ccgctgagggc ggcgttagcag gtcagccgccc ccagcggtgg tcaccaaccg gggtggaaacg 5880
gcgcggatcgat cgggtgtgtc cgtggcgctc attccaaacct ccgtgtgttt gtgcagggtt 5940
cgcgtgttgc agtccctcgc accggcaccc gcagcggaggg gtcacgggt gccggtgggt 6000
cgactagttc atcctcgaga tctaagcttg gatccgcggc cgctacgttag aattccata 6060
tggtgatggat gatggtggcc catggatata ctccttctta aagttaaaca aaattatttc 6120
tagacgcccgt ccacgctgcc tcctcacgtg acgtgaggtg caagcccgga cgttccgcgt 6180
gccacgcccgt gagccgcccgc gtgccgtcgg ctccctcagc ccggcggcc gtgggagccc 6240
gcctcgatat gtacacccga gaagctccca gcgtccctcct gggccgcgt actcgaccac 6300
cacgcacgca caccgcacta acgattcggc cggcgctcga ttccggccggc gtcgattcg 6360
gccggcgctc gattcggccgc ggcgtcgatt cggccggcgc tcgattcggc cgagcagaag 6420
agtgaacaac caccgaccac gcttccgcgt tgccgcggcgt acccgaccta cctccgcag 6480
ctcgaagcag ctccgggag taccgcgtt ctcacccgcc tgcgttcacc atccacccgac 6540
gcaaagccca acccgagcac acctcttgca ccaaggtgcc gaccgtggct ttccgcgtcgc 6600
agggttccag aagaaatcga acgatccagc gcggcaaggt tcaaaaagca ggggttggtg 6660
gggaggaggt ttgggggggt gtcgcggga tacgtatggt ggctttgttt tgcgttagtgc 6720
aataattttc catatagcct cggcgctcg gactcgaata gttgtatgtgg gcgggcacag 6780
ttgccccatg aaatccgcaa cggggggcgt gctgagcgtat cggcaatggg cggatgcgg 6840
gttgcttccg caccggccgt tcgcgacgaa caacctccaa cgaggtcagt accggatgag 6900
ccgcgcacgac gcatggcaa tgcggtagt cgagcattca ccgcacgcgt tgctcggatc 6960
tatcgatc gactgcgtatc acgttgacgc cgccatgcgc gcattcgagc aaccatccga 7020
ccatccggcg ccgaactggg tcgcacaatc gccgtccggc cgccacaca tcggatggtg 7080

gctcgcccc aaccacgtgt gccgcaccga cagcgccccga ctgacgccac tgcgctacgc 7140
ccaccgcatac gaaaccggcc tcaagatcag cgtcgccggc gatttcgcgt atggcggca 7200
actgaccaaaa aaccgcattc accccgatttgg gagacgatc tacggccgg ccacccgt 7260
cacattgcgg cagctggcca ccatccacac accccggcag atgccgcgtc ggcccgatcg 7320
ggccgtggc ctggccgca acgtcaccat gttcgacgcc acccggcgat gggcataccc 7380
gcagtggtgg caacaccgaa acggaaccgg ccgcgactgg gaccatctcg tcctgcagca 7440
ctgccacgcc gtcaacacccg agttcacgac accactgcgg ttccaccgaag tacgcgccac 7500
cgcgcaatcc atctccaaat ggatctggcg caatttcacc gaagaacagt accgagcccg 7560
acaagcgcattc ctcggtaaaa aaggcggcaa ggcaacgaca ctcgccaaac aagaagccgt 7620
ccgaaacaat gcaagaaagt acgacgaaca tacgatgcga gaggggatttta tctgtatggc 7680
ggagccaaaa atccggtgcg ccgaaagatg acggcagcag cagcagccga aaaattcggt 7740
gcctccactc gcacaatcca acgcttgttt gctgagccgc gtgacgatttta cctcgccgt 7800
gcgaaagctc gccgtgacaa agctgtcgag ctgcggaaagc aggggttggaa gtaccggaa 7860
atcgccgaag cgtatgaaact ctcgaccggg atcgtcgcc gattactgca cgacgcccgc 7920
aggcacggcg agatttcagc ggaggatctg tcggcgtaac caagtacgc ggttgcggg 7980
ttccggccgg cgctcggcac tcggaccggc cggcggatgg tttctgcct ctggcgcagc 8040
gtcagctacc gccgaaggcc tgtcatcgac cggcttcgac tgaagtatga gcaacgtcac 8100
agcctgtgat tggatgatcc gctcacgctc gaccgctacc tttcagctg ccgcccgtg 8160
ggcatgagca acggccaact ctcgttcaa 8189

<210> 54

<211> 8183

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:vector

pTip-LNH2

<400> 54

gagctcgacc gcgcgggtcc cggacgggga agagcgggga gcttgcgcag agagcgacga 60

cttcccccttg cggtgggtgat tgccggtcag ggcagccatc cgccatcgac gcgttagggtg 120
tcacacccca ggaatcgctg cactgaacac agcagccgtt aggacgacca tgactgagtt 180
ggacaccatc gcaaatccgt ccgatcccgc ggtgcagcgg atcatcgatg tcaccaagcc 240
gtcacgatcc aacataaaga caacgttgat cgaggacgtc gagcccccta tgcacagcat 300
cgcggccggg gtggagttca tcgaggctta cggcagcgtc acgagtcctt ttccatctga 360
gttgctggat ctgtgcgggc ggcagaacat accggtccgc ctcatcgact cctcgatcg 420
caaccagtttgc ttcaaggggg agcggaaaggc caagacatc ggcacatgcggc gcgtccctcg 480
cccgccagg ttccggcata tcgagcccg gcgtggggac gtgcgttgc tcgacgggt 540
gaagatcgac ggaaacatcg ggcgtatgt acgcacgtcg ctgcgtcg gaggcgtcggg 600
gatcatcctg gtggacagtg acatcaccag catcgccgtc cggcgtctcc aaagggccag 660
ccgaggttac gtcttcctcc ttcccgctgt tctctccgtt cgcgaggagg ccatcgccctt 720
cattcgggac agcgttatgc agctgtatgac gctcaaggcg gatggcgaca ttccgtgaa 780
ggaactcggtt gacaatccgg atcggctggc ctgtgtgtc ggcagcgaaa agggtgggcc 840
ttccgacctg ttccgaggagg cgtttccgc ctgggtttcc atcccatga tgagccagac 900
cgagtctctc aacgtttccg ttccctcgg aatcgccgtc cacgagagga tcgacagggaa 960
tctcgccggcc aaccgataag cgcctctgtt cctcgacgc tcggttccctc gacctcgatt 1020
cgtcagtgtatgatc acgttccgttccg atcaccactg acatatcgatgc gtcaacggtc 1080
gtggtccggg cgggactcc tcgaaggcgcc ggcgcacgccc cttaacgcac tcgatgactc 1140
tagagtaacg ggctactccg tttaacggac cccgttctca cgcttttaggc ttgacccgg 1200
agccctgcatttgc gggcattccg ccgtgaaccc ggtggatgc cccggcacc cgggctttcc 1260
agcaaagatc acctggcgcc gatgagtaag gcgtacagaa ccactccaca ggaggaccgt 1320
cgagatgaaa tctaacaatg cgctcatcgat cttccgttccg accgtcaccc tggatgtgt 1380
aggcatagggc ttggttatgc cggtaactgccc gggcctcttg cggatatgc tccattccga 1440
cagcatcgcc agtactatg gcgtgtgtc acgcgtatgt acgttgcgtc aatttctatg 1500
cgccacccgtt ctcggagcac tgcgtggacc ctttggccgc cgcggatcc tcgtcgcttc 1560
gctactttggc gccactatcg actacgcgtatc catggcgacc acacccgtcc tggatgtgt 1620
ctacgcccggc cgcatcgatcc cggcgttcc cggcgccaca ggtgcgttgc ctggcgcccta 1680
tatcgccgac atcaccgtatg gggaaagatcg ggctcgccac ttccggctca tgagcgctt 1740
tttcggcgatg ggtatggatgg caggccccgtt ggccgggggatggccgttccatctccctt 1800
gcatgcacca ttcccttgcgg cggcggtgttca acacggccctc aacctactac tgggctgctt 1860

cctaatgcag gagtcgcata agggagagcg tcgtccgatg cccttgagag ccttcaaccc 1920
agtcagctcc ttccgggtggg cgccgggcat gactatcgic gccgcactta tgactgtctt 1980
ctttatcatg caactcgtag gacaggtgcc ggcagcgctc tgggtcattt tcggcgagga 2040
ccgctttcgc tggagcgcga cgatgatcgg cctgtcgctt gcggtattcg gaatcttgca 2100
cgccctcgct caaggcttcg tcactggtcc cgccaccaa cgtttcggcg agaaggcaggc 2160
cattatcgcc ggcatggcgg ccgacgcgt gggctacgtc ttgttggcgt tcgcgacgcg 2220
aggctggatg gccttccccca ttatgattct tctcgcttcc ggcatggatcg ggtatgcccgc 2280
gttgcaggcc atgcgttcca ggcaggtaga tgacgaccat cagggacagc ttcaaggatc 2340
gctcgccggct cttaccagcc taacttcgtat cattggaccg ctgatcgta cggcgattta 2400
tgccgcctcg gcgagcacat ggaacgggtt ggcatggatt gttaggcgcgc ccctatacct 2460
tgtctgcctc cccgcgttgc gtcgcgttgc atggagccgg gccacccgtcga cctgaatgg 2520
agccggcggc acctcgctaa cggattcacc actccaagaa ttggagccaa tcaattctt 2580
cgaggaaactg tgaatgcgc aaccaaccct tggcagaaca tatccatcg tcgcgcac 2640
tccagcagcc gcacgcggcg catctcggtc agcgttgggt cctggccacg ggtgcgcgt 2700
atcgtgctcc tgtcggttgc gactagaatt gatctcctcg accgccaatt gggcatctga 2760
gaatcatctg cgtttctcg acgcaacgtt ctgcaacgt tgcaactcct agtgttgtga 2820
atcacacccc accgggggtt gggattgcag tcaccgatgg tgggggtgcg cccaggaaga 2880
tcacgtttac ataggagctt gcaatgagct actccgtggg acaggtggcc ggcttcgcgc 2940
gagtgacggt ggcacgcgtg caccactacg acgacatcg cctgctcgta ccgaggcagc 3000
gcagccacgc gggccaccgg cgctacagcg acgcccaccc cgaccggctg cagcagatcc 3060
tgttctaccg ggagctggc ttcccgctcg acgagggtgcg cgcctgctc gacgaccgg 3120
ccgcggaccc ggcgcgcac ctgcgcgcac agcacgagct gctgtccgc cggatcgga 3180
aactgcagaa gatggcggcg gccgtggagc aggcgatgg ggcacgcagc atggaaatca 3240
acctcacccc ggaggagaag ttcgagggtct tcggcgactt cgaccccgac cagtacgagg 3300
aggagggtccg ggaacgcgtgg gggaaacaccg acgcctaccg ccagtccaaag gagaagaccg 3360
cctcgtacac caaggaggac tggcagcgca tccaggacga ggccgacgag ctcacccggc 3420
gcttcgtcgc cctgatggac gcgggtgagc ccgcccacgtc cgagggggcg atggacgcgc 3480
ccgaggacca ccggcaggggc atcgcccgca accactacga ctgcgggtac gagatgcaca 3540
cctgcctggg cgagatgtac gtgtccgacg aacgtttcac gcgaaacatc gacgcccaca 3600
agccgggcct cggccctac atgcgcgacg cgatcctcgca acgcgcgtc cggcacaccc 3660

cctgagcggt ggtcggtggcc cgggtctccc gcccggtctc accccacggc tcactccgg 3720
gccacgacca cgcgcgtccc gtacgcgcac acctcggtgc ccacgtccgc cgcctccgtc 3780
acgtcgaaac ggaagatccc cgggtaccga gctcgtaagg tggactttt cggggaaatg 3840
tgcgcgaaac ccctatttgt ttattttct aaatacattc aaatatgtat ccgctcatga 3900
gacaataacc ctgataaaatg ctcaataat attaaaaag gaagagtatg agtattcaac 3960
atttccgtgt cgcccttatt cccttttg cggcatttg cctcctgtt ttgctcacc 4020
cagaaacgct ggtgaaagta aaagatgctg aagatcagtt gggtcacga gtgggttaca 4080
tcgaactgga tctcaacagc ggtaagatcc ttgagagtt tcgccccgaa gaacgtttc 4140
caatgatgag cactttaaa gttctgtat gtggcgcggt attatccgt attgacgccc 4200
ggcaagagca actcggtcgc cgcatacact attctcagaa tgacttggtt gagtactcac 4260
cagtcacaga aaagcatctt acggatggca tgacagtaag agaattatgc agtgcgtcca 4320
taaccatgag tgataaacact gcggccaact tactctgac aacgatcgga ggaccgaagg 4380
agctaaccgc tttttgcac aacatgggg atcatgtaac tcgccttgat cggtggaaac 4440
cgtagctgaa tgaagccata ccaaacgacg agcgtgacac cacgatgcct gttagaatgg 4500
caacaacgtt gcgcaaacta ttaactggcg aactacttac tctagcttcc cggcaacaat 4560
taatagactg gatggaggcg gataaagttt caggaccact tctgcgtcg gcccttccgg 4620
ctggctgggtt tattgctgat aaatctggag ccggtgagcg tgggtctcgc ggtatcattt 4680
cagcaactggg gccagatgggt aagccctccc gtatcgtagt tatctacacg acggggagtc 4740
aggcaactat ggtgaacga aatagacaga tcgctgagat aggtgcctca ctgattaagc 4800
attggtaact gtcagaccaa gtttactcat atatactta gattgattt aaacttcatt 4860
tttaatttaa aaggatctag gtgaagatcc ttttgataa tctcatgacc aaaatccctt 4920
aacgtgagtt ttcgttccac tgagcgtcag accccgtaga aaagatcaaa ggatcttctt 4980
gagatccctt tttctgcgc gtaatctgct gcttgcaaac aaaaaaacca cgcgtaccag 5040
cggtggtttg ttggccggat caagagctac caactcttt tccgaaggta actggcttca 5100
gcagagcgcga gataccaaat actgttcttc tagttagcc gtagtttaggc caccactca 5160
agaactctgt agcaccgcct acataccctcg ctctgctaatt cctgttacca gtggctgctg 5220
ccagtgccga taagtcgtgt ctaccgggt tggactcaag acgatagttt ccggataagg 5280
cgccagcggc gggctgaacg gggggttcgt gcacacagcc cagcttggag cgaacgaccc 5340
acaccgaact gagataccctt cagcgtgagc tatgagaaag cgccacgctt cccgaaggga 5400
gaaaggcggga caggtatccg gtaagcggca gggtcggaac aggagagcgc acgagggagc 5460

ttccaggggg aaacgcctgg tatcttata gtcctgtcgg gtttcgccac ctctgacttg 5520
agcgtcgatt tttgtgatgc tcgtcagggg ggcggagcct atgaaaaaac gccagcaacg 5580
cggcctttt acggttcctg gcctttgtc gccttttc tcacatgtt tttccctgcgt 5640
tatccctga ttctgtggat aaccgtatta ccgccttga gtgagctgat accgctgcc 5700
gcagccgaac gaccgagcgc agcgagtcag tgagcgagga agcggaaagag cgcccaatac 5760
gcaaaccgccc tctccccgcg cggtggccga ttcatatgc cagctggcac gactagagtc 5820
ccgctgagggc ggcgtagcag gtcagccgccc ccagcggtgg tcaccaaccg gggtggaaacg 5880
gcgcggat cgggtgtgtc cgtggcgctc attccaaacct ccgtgtgtt gtgcagggtt 5940
cgcgtgttgc agtccctcgc accggcaccc gcagcgaggg gctcacgggt gcccgggg 6000
cgactagttc agtgtatggtg atggtgatgt cctcgagatc taagcttggta tccgcggccg 6060
ctacgtagaa ttcccatggt atatctctt cttaaagtta aacaaaatta ttcttagacg 6120
ccgtccacgc tgcctcctca cgtgacgtga ggtgcaagcc cggacgttcc gcgtgccacg 6180
ccgtgagccg ccgcgtgccc tcggctccct cagccgggc ggccgtggga gcccgcctcg 6240
atatgtacac ccgagaagct cccagcgtcc tcctggccg cgataactcga ccaccacgca 6300
cgcacaccgc actaacgatt cggccggcgc tcgattcggc cggcgctcga ttccggccggc 6360
gctcgattcg gccggcgctc gattcggccg gcgctcgatt cggccgagca gaagagtgaa 6420
caaccaccga ccacgcttcc gctctgcgcg ccgtacccga cctacccccc gcagctcgaa 6480
gcagctcccg ggagtaccgc cgtactcacc cgcctgtgtc caccatccac cgacgcaaag 6540
cccaaccga gcacacctct tgcaccaagg tgccgaccgt ggcttccgc tcgcagggtt 6600
ccagaagaaa tcgaacgatc cagcgcggca aggttcaaaa agcaggggtt ggtggggagg 6660
aggtttggg ggggtgtcgcc gggatactg atatggctt gttttgcgtt gtcgaataat 6720
tttccatata gcctcggcgc gtcggactcg aatagttgat gtggcgggc acagttgcac 6780
catgaaatcc gcaacgggg gcgtgcgtgag cgatcgcaaa tggcgatg cgggtgtgt 6840
tccgcaccgg ccgttcgcga cgaacaacct ccaacgaggt cagtaccgga tgagccgcga 6900
cgacgcattt gcaatgcggt acgtcgagca ttccacgcac gcgttgcgt gatctatcgt 6960
catcgactgc gatcacgtt acgcccgcgt ggcgcattt cagcaaccat ccgaccatcc 7020
ggcgccgaac tgggtgcac aatcgccgtc cggccgcgc cacatcgat ggtggctcg 7080
ccccaaaccac gtgtgccgca ccgacagcgc cgcactgacg ccactgcgt acgcccaccg 7140
catcgaaacc ggcctcaaga tcagcgtcgg cggcgatttc gcgtatggcg ggcaactgac 7200
aaaaaaccgg attcaccccg attgggagac gatctacggc ccggccaccc cgtacacatt 7260

gcggcagctg gccaccatcc acacaccccg gcagatgccg cgtcgcccg atcggccgt 7320
gggcctggc cgcaacgtca ccatgttcga cgccacccgg cgtggccat acccgagtg 7380
gtggcaacac cgaaacggaa cggccgcga ctgggaccat ctgcctcgc agcaactgcca 7440
cgccgtcaac accgagttca cgacaccact gccgttcacc gaagtacgctg ccaccgcga 7500
atccatctcc aaatggatct ggcgaattt caccgaagaa cagtaccgag cccgacaagc 7560
gcatctcggt caaaaaggcg gcaaggcaac gacactcgcc aaacaagaag ccgtccgaaa 7620
caatgcaaga aagtacgacg aacatacgat gcgagaggcg attatctgat gggcggagcc 7680
aaaaatccgg tgcgccgaaa gatgacggca gcagcagcag ccgaaaaatt cggtgcctcc 7740
actcgaccaa tccaacgctt gtttgctgag ccgcgtgacg attacctcgcc cggtgcgaaa 7800
gctcgccgtg acaaagctgt cgagctcggt aagcaggggt tgaagtaccg gaaatcgcc 7860
gaagcgatgg aactctcgac cgggatcgac ggccgattac tgcacgacgc ccgcaggcac 7920
ggcgagattt cagcggagga tctgtcggcg taaccaagtc agcgggttgt cgggttccgg 7980
ccggcgctcg gcactcgac cggccggcgg atggtgttct gcctctggcg cagcgtcagc 8040
taccgccgaa ggcctgtcat cgaccggctt cgactgaagt atgagcaacg tcacagcctg 8100
tgattggatg atccgctcac gctcgaccgc tacctgttca gctgccgccc gctggccatg 8160
agcaacggcc aactctcgtt caa 8183

<210> 55

<211> 8123

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:vector
pTip-LCH1

<400> 55

gagctcgacc gcgcgggtcc cggacgggaa agagcgggaa gcttgcacag agagcgacga 60
cttcccccttg cgttggtgat tgccggtcag ggcagccatc cgccatcgac gcgttagggtg 120
tcacacccca ggaatcgct cactgaacac agcagccggt aggacgacca tgactgagtt 180

ggacaccatc gcaaattccgt ccgatccgc ggtgcagcgg atcatcgatg tcaccaagcc 240
gtcacgatcc aacataaaga caacgttgcgat cgaggacgtc gagccctca tgcacagcat 300
cgccggccggg gtggagttca tcgaggctca cggcagcgc acgagtcctt ttccatctga 360
gttgctggat ctgtgcgggc ggcagaacat accggccgc ctcatcgact cctcgatcgt 420
cccgccagg ttcggcgata tcgagccg gcgtggggac gtcgtcggtc tcgacgggt 480
gaagatcgtc gggaaacatcg ggcgcataatg acgcacgtcg ctgcgcctcg gagcgtcggg 540
gatcatccgt gtggacatgt acatcaccag catcgccgc cggcgctcc aaaggccag 600
ccgaggttac gtcttcctcc ttcccgatgt tctctccgtt cgcgaggagg ccatgcctt 660
catcgccggac agcgtatgc agctgtatgc gctcaaggcg gatggcgaca ttccgtgaa 720
ggaactcggg gacaatccgg atcggctggc ctgcgtgtc ggcagcgaaa agggtggcc 780
ttccgacctg ttcgaggagg cgtctccgc ctgcgttcc atcccatga tgagccagac 840
cgagtcttc aacgtttccg ttccctcgg aatcgccctcg cacgagagga tcgacaggaa 900
tctcgccggcc aaccgataag cgcctctgtt cctcgacgc tcggttccgc gacctcgatt 960
cgtcagtgtatgatcaccatca cacggcagcgt atcaccactg acatatcgag gtcaacggtc 1020
gtggccggg cggcactcc tcgaaggcgc ggccgacgccc ctgaacgac tcgatgactc 1080
tagagtaacg ggctactccg tttaacggac cccgttctca cgctttaggc ttgacccgg 1140
ggcctgcattt gggcattccg ccgtgaaccc ggtggatgc cccggcacc cggcattcc 1200
agcaaagatc acctggcgcc gatgagtaag gcgtacagaa ccactccaca ggaggaccgt 1260
cgagatgaaa tctaacaatg cgctcatcgat catcctcgcc accgtcaccc tggatgctgt 1320
aggcatagggc ttggatgtatgc cggtactgccc gggctcttg cggatatcg tccattccga 1380
cagcatcgcc agtcaactatg gcgtgctgt agcgctataat gcgttgatgc aatttctatg 1440
cgccacccgtt ctgcggacac tgtccgaccg ctggccgc cggccatgtcc tgctcgcttc 1500
gctacttggaa gccactatcg actacgcgtatcatggcgacc acacccgtcc tgtggattct 1560
ctacgcccggaa cgcatcggtt ccggcatcac cggccacaca ggtgcgggttgc ctggccctta 1620
tatcgccgac atcaccgtatg gggaaatcg ggctcgccac ttccggctca tgagcgcttgc 1680
tttcggcgatgt ggtatggatggc caggccccgt ggccggggga ctgttggcgcc ccatctcc 1740
gcatgcacca ttcccttgcgg cggcgggtgtt caacggccctc aacctactac tgggctgctt 1800
cctaattgcag gagtcgcata agggagagcgt tcgtccgtatgc cccttgcggatggcc 1860
agtcaatcgatcc ttccggatggc cgcggccat gactatcgatc ggcgcactta tgactgtttt 1920
ctttatcatg caactcgtag gacagggtgcc ggcagcgcgtc tgggtcatggc tcggccggaa 1980

tgcgcgaaac ccctatttgt ttattttct aaatacattc aaatatgtat ccgctcatga 3840
gacaataacc ctgataaaatg cttaataat attaaaaaag gaagagtgatg agtattcaac 3900
atttccgtgt cgcccttatt cccttttg cggcatttg ccttcgtt tttgctcacc 3960
cagaaacgct ggtgaaagta aaagatgctg aagatcagtt gggcacga gtgggttaca 4020
tcgaactgga tctcaacagc ggtaaagatcc ttgagagtt tcgccccaa gaacgttttc 4080
caatgatgag cactttaaa gttctgctat gtggcgcggt attatccgt attgacgccc 4140
ggcaagagca actcggtcgc cgcatcact attctcagaa tgacttggtt gagtactcac 4200
cagtcacaga aaagcatctt acggatggca tgacagtaag agaattatgc agtgcgtcca 4260
taaccatgag tgataaacact gcggccaact tacttctgac aacgatcggaa ggaccgaagg 4320
agctaaccgc tttttgcac aacatgggg atcatgtaac tcgccttgat cgttggaaac 4380
cgtagctgaa tgaagccata ccaaacgacg agcgtgacac cacgatgcct gtagcaatgg 4440
caacaacgtt gcgcaaacta ttaactggcg aactacttac tctagcttcc cggcaacaat 4500
taatagactg gatggaggcg gataaagttt caggaccact tctgcgcctcg gcccttccgg 4560
ctggctgggtt tattgctgtat aaatctggag ccggtgagcg tgggtctcgc ggtatcattt 4620
cagcaactggg gccagatggt aagccctccc gtatcgtagt tatctacacg acggggagtc 4680
aggcaactat ggatgaacga aatagacaga tcgctgagat aggtgcctca ctgattaagc 4740
atggtaact gtcagaccaa gtttactcat atatacttta gattgatttta aaacttcatt 4800
tttaatttaa aaggatctag gtgaagatcc ttttgataa tctcatgacc aaaatccctt 4860
aacgtgagtt ttcgttccac tgagcgtcag accccgtaga aaagatcaaa ggatcttctt 4920
gagatccttt tttctgcgc gtaatctgct gcttgcaaac aaaaaaaccac cgcctaccag 4980
cggtggtttgcgtt tttgccggat caagagctac caactttt tccgaaggta actggcttca 5040
gcagagcgca gataccaaat actgttcttc tagttagcc gtagtttaggc caccacttca 5100
agaactctgt agcaccgcct acataccctcg ctctgctaatt cctgttacca gtggctgctg 5160
ccagtggcga taagtctgtt cttaccgggt tggactcaag acgatagttt ccggataagg 5220
cgccagcggc gggctgaacg ggggttcgtt gcacacagcc cagcttggag cgaacgacct 5280
acaccgaact gagataccctt cagcgtgagc tatgagaaag cgcacacgtt cccgaaggaa 5340
gaaaggcgga caggtatccg gtaagcggca gggtcggaaac aggagagcgc acgagggagc 5400
ttccaggggg aaacgcctgg tatcttata gtcctgtcgg gtttcggccac ctctgacttg 5460
agcgtcgatt ttgtgtatgc tcgtcagggg ggcggagcct atggaaaaac gccagcaacg 5520
cgccctttt acggttcctg gcctttgct ggcctttgc tcacatgttc tttcctgcgt 5580

tatcccctga ttctgtggat aaccgtatta ccgccttga gtgagctgat accgctcgcc 5640
gcagccgaac gaccgagcgc agcgagtcag tgagcgagga agcggaaagag cgcccaatac 5700
gcaaaccgcc tctccccgct cgttggccga ttcatatgc cagctggcac gactagagtc 5760
ccgctgagggc ggcgttagcag gtcagccgccc ccagcggtgg tcaccaaccg gggtgaaacg 5820
gcccggat cgggtgtgtc cgtggcgctc attccaaacct ccgtgtgttt gtgcagggtt 5880
cgcggttgtc agtccctcgc accggcaccc gcagcgaggg gctcacgggt gccggtggtt 5940
cgactagttc agtgtatggtg atggatgtatgt cctcgagatc taagcttggta tccgcccgg 6000
ctacgttagaa ttcccatggt atatctcctt cttaaagtta aacaaaatta ttcttagacg 6060
ccgtccacgc tgcctcctca cgtgacgtga ggtgcaagcc cggacgttcc gcgtgccacg 6120
ccgtgagccg ccgcgtgccc tcggctccct cagcccgccc ggcgtggta gcccgcctcg 6180
atatgtacac ccgagaagct cccagcgtcc tcctgggccc cgatactcga ccaccacgca 6240
cgcacaccgc actaacgatt cggccggcgc tcgattcggc cggcgtcga ttccggccggc 6300
gctcgattcg gccggcgctc gattcgccg ggcgtcgatt cggccgagca gaagagtgaa 6360
caaccaccga ccacgcttcc gctctgcgcg ccgtacccga cctacctccc gcagctcgaa 6420
gcagctcccg ggagtaccgc cgtactcacc cgcctgtgct caccatccac cgacgcaaag 6480
cccaaccgcg gcacacctct tgcaccaagg tgccgaccgt ggcttccgc tcgcagggtt 6540
ccagaagaaa tcgaacgatc cagcgccgca aggttcaaaa agcaggggtt ggtggggagg 6600
aggttttggg ggggtgtcgcc gggataacctg atatggcttt gtttgcgtt gtcgaataat 6660
tttccatata gcctcgccgc gtcggactcg aatagttgat gtggcgccc acagttgccc 6720
catgaaatcc gcaacggggg gcgtgctgag cgatggcaa tggcgatg cgggtgtgct 6780
tccgcaccgg ccgttcgcga cgaacaacct ccaacgaggt cagtaccgga tgagccgcga 6840
cgacgcattt gcaatgcggt acgtcgagca ttccacgcac gcgttgctcg gatctatcgt 6900
catcgactgc gatcacgtt acgcccgcgt ggcgcatttcc gagcaaccat ccgaccatcc 6960
ggcgccgaaac tgggtcgac aatcgccgtc cggccgcgcac cacatggat ggtggctcg 7020
ccccaaaccac gtgtgccgca ccgacagcgc cgcactgacg ccactgcgtc acgcccaccg 7080
catcgaaacc ggcctcaaga tcagcgctgg cggcgatttc gcgtatggcg ggcaactgac 7140
caaaaaccgc attcaccccg attgggagac gatctacggc ccggccaccc cgtacacatt 7200
gccccccgtt ggcaccatcc acacaccccg gcagatgcgc cgtcgcccg atcggccgt 7260
ggccctggc cgcaacgtca ccatgttcga cggccaccgg cgatggcat acccgcagtg 7320
gtggcaacac cgaaacggaa ccggccgcga ctgggaccat ctcgtcctgc agcactgcca 7380

cgccgtcaac accgagttca cgacaccact gccgttacc accgtacgctt ccaccgcgca 7440
atccatctcc aatggatct ggccaaattt caccgaagaa cagtaccgag cccgacaagc 7500
gcatctcggt caaaaaggcg gcaaggcaac gacactcgcc aaacaagaag ccgtccgaaa 7560
caatgcaaga aagtacgacg aacatacgat gcgagaggcg attatctgat gggcggagcc 7620
aaaaatccgg tgcggcggaaa gatgacggca gcagcagcag ccgaaaaatt cggtgccctcc 7680
actcgcacaa tccaacgctt gtttgctgag ccgcgtgacg attacctcggt ccgtgcgaaa 7740
gcgtcgccgtg acaaagctgt cgagctgcgg aagcaggggt tgaagtaccg ggaaatcgcc 7800
gaagcgatgg aactctcgac cgggatcgac ggccgattac tgcacgacgc ccgcaggcac 7860
ggcgagatt cagcggagga tctgtcgccg taaccaagtc agcgggttgt cgggttccgg 7920
ccggcgctcg gcactcgac cggccggcgg atggtgttct gcctctggcg cagcgtcagc 7980
taccggcggaa ggcctgtcat cgaccggctt cgactgaagt atgagcaacg tcacagcctg 8040
tgattggatg atccgctcac gctcgaccgc tacctgttca gctgccgccc gctgggcatg 8100
agcaacggcc aactctcggtt caa 8123

<210> 56

<211> 8184

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:vector

pTip-LCH2

<400> 56

gagctcgacc gcgcgggtcc cggacgggaa agagcgggaa gctttgccag agagcgacga 60
cttcccccttg cgttgggtat tgccggtcag ggcagccatc cgccatcgac gcgttagggtg 120
tcacacccca ggaatcgct cactgaacac agcagccgtt aggacgacca tgactgagtt 180
ggacaccatc gcaaattccgtt ccgatcccgc ggtgcagcgg atcatcgatg tcaccaagcc 240
gtcacgatcc aacataaaaga caacgttgcgat cgaggacgac gagccctca tgcacagcat 300
cgccggccggg gtggagttca tcgaggctca cggcagcgc acgagtcctt ttccatctga 360
gttgctggat ctgtgcgggc ggcagaacat accggtccgc ctcatcgact cctcgatcgt 420

caaccagttt ttcagggggg agcgaaaggc caagacattt ggcatttttgcggcc 480
cccgccagg ttccggcgata tcgcgagccg gcgtggggac gtcgtcgttt tcgacgggtt 540
gaagatcgatc gggaaacatcg gcgcgatagt acgcacgtcg ctgcgtcg gagcgtcg 600
gatcatccgtt gtggacagtg acatcaccag catcgccggac cggcgcttcc aaaggccag 660
ccgaggttac gtcttctccc ttcccgatcg tctctccgtt cgcgaggagg ccatcgcc 720
cattcgggac agcggtatgc agctgtatgc gctcaaggcg gatggcgaca ttccgtgaa 780
ggaactcggg gacaatccgg atcggctggc ctgcgtgtt ggcagcgaaa agggtggcc 840
ttccgaccgtt ttccgttccgc ctgcgtttcc atccccatga tgagccagac 900
cgagtcttc aacgtttccg ttccctcgg aatcgccgtt cacgagagga tcgacaggaa 960
tctcgccggcc aaccgataag cgcctctgtt cctcgacgc tcggttccctc gacctcgatt 1020
cgtcagtgtt gatcacctca cacggcagcg atcaccactt acatatcgatgtt gtcacggcc 1080
gtggtccggg cgggcactcc tcgaaggcgcc ggccgacgccc ttgaacgac tcgatgactt 1140
tagagtaacg ggctactccg tttaacggac cccgttctca cgctttaggc ttgacccgg 1200
agcctgcattt gggcattccg ccgtgaaccc ggtggatgc cccggcacc cggccttcc 1260
agcaaaagatc acctggcgcc gatgagtaag gcgtacagaa ccactccaca ggaggaccgt 1320
cgagatgaaa tctaacaatg cgctcatcgatc catcctcggtt accgtcaccc tggatgtgtt 1380
aggcatagggc ttggttatgc cggtactgcc gggctcttg cggatatgc tccattccga 1440
cagcatcgcc agtcaactatg gcgtgtgtt agcgctatat gcgttgcattt aatttctatg 1500
cgcacccgtt ctggggacac tgtccgaccg ctggccgc cggccagtc tgctcgctt 1560
gctacttggaa gccactatcg actacgcgtt catggcgacc acacccgtcc tgtggattct 1620
ctacgcccggaa cgcatcggtt ccggcatcac cggcgccaca ggtgcggttt ctggcccta 1680
tatcgccgac atcaccgtt gggaaatcg ggctcgccac ttccggctca tgagcgctt 1740
tttcggcggtt ggtatgggtt caggccccgtt ggccggggga ctgttggcgcc ccatctcc 1800
gcatgcacca ttcccttgcgg cggcggtgtt caacggccctt aacctactac tgggctgttt 1860
cctaattgcgtt gagtcgcata agggagagcg tcgtccgtt cccttggatgc ccttcaaccc 1920
agtcaatgcgtt ttccgggtgg cgcggggcat gactatcgatc ggcgcactt tgactgtttt 1980
ctttatcatgtt caactcgatgtt gacagggtgtt ggcagcgctt tgggtcattt tcggcgaggtt 2040
ccgccttcgc tggagcgccgtt cgttgcgtt gcggtattcg gaatcttgcgtt 2100
cgccctcgctt caaggcccttgcgtt tcacttggatgc cggccaccaaa cgtttcgccgtt agaaggcaggc 2160
cattatcgcc ggcattggcggtt ccgcacgcgtt gggctacgtt ttgcgtgggtt tcgcgacgcgtt 2220

aggctggatg gcctcccc ttatgattct tctcgcttcc ggccgcacatcg ggatccccgc 2280
gttgcaggcc atgcgttcca ggcaggtaga tgacgaccat cagggacagc ttcaaggatc 2340
gctcgccgct ctaccagcc taacttcgtat cattggaccg ctgtatgtca cggcgattta 2400
tgccgcctcg gcgagcacat ggaacgggtt ggcacatggatt gttaggcgcgg ccctataacct 2460
tgtctgcctc cccgcgttgc gtcgcgttgc atggagccgg gccacatcgat cctgaatggat 2520
agccggcggc accttcgtttaa cggatttacc actccaagaa ttggagccaa tcaatttttgc 2580
cgagagaactg tgaatgcgc aaccaaccct tggcagaaca tatccatcgat gtccgcacatc 2640
tccagcagcc gcacgcggcg catctcggttgc agcggtgggt cctggccacg ggtgcgcatg 2700
atcgtgttcc tgcgtttag gactagaatt gatcttcgttgc accgccaattt gggcatctgt 2760
gaatcatctg cgtttctcgat acgcaacgtt cttgcaacgt tgcaactcctt agtgttgt 2820
atcacaccc accgggggggtt gggatttgcag tcaccgattt ggtgggtgcgc cccaggaaga 2880
tcacgttttac ataggagctt gcaatgagctt actccgttggg acaggtggcc ggcttcgcgc 2940
gagtgacggtt ggcacacgtt caccactacg acgacatcggtt cctgtcgat cccagcgagc 3000
gcagccacgc gggccaccggcg cgctacagcg acgcccacccgtt cgaccggctg cagcagatcc 3060
tgttctaccg ggagctgggc ttcccgctcg acgaggttgcgc cgcctgttc gacgacccgg 3120
ccgcggaccc ggcgcgcac ctgcgcgcgc accacgatgtt gctgtccgcgc cggatcggtt 3180
aactgcagaa gatggcggcg gccgtggagc aggcgatggat ggcacgcagc atggaaatca 3240
acctcaccc accggggaaatggat ttcgaggttct tcggcgactt cgaccccgac cagtacgagg 3300
aggaggtccg ggaacgctgg gggaaacaccg acgccttaccg ccagtccaaag gagaagaccg 3360
cctcgtacac caaggaggac tggcagcgatcc tccaggacgat ggcacgcacatc ctcacccggc 3420
gcttcgttgc cctgtatggac gcccgttgc acgcccacccgtt cgagggggcg atggacgcgc 3480
ccgaggacca ccggcaggac atgcggccatcc accactacgat cttgggttgc gagatgcaca 3540
cctgccttggg cgagatgttac gtgtccgcac accgttttac ggcacgcacatc gacgcccgc 3600
agccgggcctt cgcgcctac atgcgcacgc cgtatccgttgc caacgcgttgc cggcacaccc 3660
cctgagcggtt ggtcggtggcc cgggttccccc gcccgttgc accccacggc tcaactccgg 3720
gccacgcacca ccgcgttccccc gtacgcgcac accctcggttgc ccacgtccgc cgcctccgtc 3780
acgtcgaaac ggaagatccc cgggttaccga gctcgatggat tggactttt cggggaaatgt 3840
tgcgcggaaac ccctatttttgc ttattttctt aaatacatcc aaataatgtat ccgttcatgt 3900
gacaataacc ctgataaaatg ttcaataat attaaaaaaatg gaagagatgtt agtattcaac 3960
atttcgttgc cggcccttattt cccttttttgc cggcattttgc ctttcgttgc tttgcttacc 4020

cagaaaacgct ggtgaaagta aaagatgctg aagatcagtt gggcacga gtgggttaca 4080
tcgaactgga tctcaacagc ggtaagatcc ttgagagtt tcgccccgaa gaacgtttc 4140
caatgatgag cactttaaa gttctgtat gtggcgcggt attatccgt attgacgccc 4200
ggcaagagca actcggtcgc cgcatcacact attctcagaa tgacttggtt gagtactcac 4260
cagtacaga aaagcatctt acggatggca tgacagiaag agaattatgc agtgctgcca 4320
taaccatgag tgataaacact gcggccaact tacttctgac aacgatcgga ggaccgaagg 4380
agctaaccgc tttttgcac aacatgggg atcatgtaac tcgccttgat cggtggaaac 4440
cgagctgaa tgaagccata ccaaacgacg agcgtgacac cacgatgcct gtagcaatgg 4500
caacaacgtt gcgcaaacta ttaactggcg aactacttac tctagcttcc cgccaacaat 4560
taatagactg gatggaggcg gataaagttg caggaccact tctgcgctcg gcccttccgg 4620
ctggctggtt tattgctgat aaatctggag ccggtgagcg tgggtctcgc ggtatcattg 4680
cagcactggg gccagatggt aagccctccc gtatcgtagt tatctacacg acggggagtc 4740
aggcaactat ggtatgaacga aatagacaga tcgctgagat aggtgcctca ctgattaagc 4800
attggtaact gtcagaccaa gtttactcat atatacttta gattgattt aaacttcatt 4860
tttaatttaa aaggatctag gtgaagatcc ttttgataa tctcatgacc aaaatccctt 4920
aacgtgagtt ttcgttccac tgagcgtcag accccgtaga aaagatcaaa ggatcttctt 4980
gagatccctt tttctgcgc gtaatctgct gcttgcaaac aaaaaacca ccgctaccag 5040
cggtggtttg tttgccggat caagagctac caactcttt tccgaaggta actggcttca 5100
gcagagcgca gataccaaat actgttcttc tagttagcc gtagtttaggc caccacttca 5160
agaactctgt agcaccgcct acataccctg ctctgctaatt cctgttacca gtggctgctg 5220
ccagtggcga taagtctgtt ctaccgggt tggactcaag acgatagttt ccggataagg 5280
cgcagcggtc gggctgaacg ggggttcgt gcacacagcc cagcttggag cgaacgacct 5340
acaccgaact gagataccctt cagcgtgagc tatgagaaag cgcacgcctt cccgaaggga 5400
gaaaggcgga caggtatccg gtaagcggca gggtcggaac aggagagcgc acgagggagc 5460
ttccaggggg aaacgcctgg tatcttata gtcctgtcgg gtttcgcac ctctgacttg 5520
agcgtcgatt tttgtgatgc tcgtcagggg ggcggagcct atggaaaaac gccagcaacg 5580
cgccctttt acggttccctg gcctttgct ggcctttgc tcacatgttc ttccctgcgt 5640
tatccccctga ttctgtggat aaccgtattt ccgcctttga gtgagctgat accgctcgcc 5700
gcagccgaac gaccgagcgc agcgagtcag tgagcgagga agcggaaagag cgcccaatac 5760
gcaaaccgccc tctccccgct cgttggccga ttcatatc cagctggcac gactagagtc 5820

ccgctgaggc ggcgttagcag gtcagccgcc ccagcggtgg tcaccaaccg gggtggaacg 5880
gcgcccgtat cgggtgtgtc cgtggcgctc attccaacct ccgtgtgtt gtgcaggitt 5940
cgcgtgttgc agtccctcgc accggcaccc gcagcgaggg gctcacgggt gccggtggtt 6000
cgactagttc agtgtatggtg atggtgatgt cctcgagatc taagcttggta tccgcccgg 6060
ctacgtagaa ttcccatatg tataatcttct tcttaaagtt aaacaaaatt atttcttagac 6120
gccgtccacg ctgcctccctc acgtgacgtg aggtgcaagc ccggacgttc cgcgtgccac 6180
gccgtgagcc gccgcgtgcc gtcggctccc tcagcccggg cggccgtggg agccgcctc 6240
gatatgtaca cccgagaagc tcccagcgta ctcctggcc gcgataactcg accaccacgc 6300
acgcacacccg cactaacgat tcggccggcg ctcgattcgg ccggcgctcg attcgccgg 6360
cgctcgattc ggccggcgct cgattcggcc ggcgctcgat tcggccgagc agaagagtga 6420
acaaccacccg accacgcttc cgctctgcgc gccgtacccg acctacctcc cgcagctcga 6480
agcagctccc gggagtaaccg ccgtactcac ccgcctgtgc tcaccatcca ccgacgcaaa 6540
gcccaacccg agcacacccctc ttgcaccaag gtgccgaccg tggcttccg ctcgcagggt 6600
tccagaagaa atcgaacgat ccagcgcggc aagggtcaaa aagcaggggt tggtggggag 6660
gaggttttgg ggggtgtcgc cggataacct gatatggctt tggcttgcgt agtcaataa 6720
tttccatat agcctcggcg cgtggactc gaatagttga tgtggccgg cacagttgcc 6780
ccatgaaatc cgcaacgggg ggcgtgtga gcgatggca atggcgat ggcgtgttc 6840
ttccgcacccg gccgttcgcg acgaacaacc tccaacgagg tcagtaccgg atgagccgcg 6900
acgacgcatt ggcaatgcgg tacgtcgagc attcaccgca cgcgttgctc ggatctatcg 6960
tcatcgactg cgatcacgtt gacgccgcga tgccgcatt cgagcaacca tccgaccatc 7020
cgccgcccggaa ctgggtcgca caatcgccgt ccggccgcgc acacatcgga tggtggtcg 7080
gcccccaacca cgtgtgccgc accgacagcg cccgactgac gccactgcgc tacgcccacc 7140
gcatgaaac cggccctaag atcagcgtcg gcccgcattt cgcgtatggc gggcaactga 7200
ccaaaaaccc gattcacccc gatgggaga cgatctacgg cccggccacc ccgtacacat 7260
tgcggcagct ggccaccatc cacacacccccc ggcagatgcc gcgtcgccccc gatcggcccg 7320
tgggcctggg ccgcaacgtc accatgttcg acgccaccccg gcgatgggca taccgcagt 7380
ggggcaaca ccgaaacgga accggccgcg actgggacca tctcgctcg cagcactgcc 7440
acgcccgtcaa caccgagttc acgacaccac tgccgttac cgaagtacgc gccaccgcgc 7500
aatccatctc caaatggatc tggcgcaatt tcaccgaaga acagtaccga gcccgacaag 7560
cgcatctcgg tcaaaaaggc ggcaaggcaa cgacactcgc caaacaagaa gccgtccgaa 7620

acaatgcaag aaagtacgac gaacatacga tgcgagaggg gattatctga tggcggagc 7680
caaaaatccg gtcgcggaa agatgacggc agcagcagca gccaaaaat tcgggcctc 7740
cactcgacca atccaacgct ttttgctga gccgcgtgac gattacctcg gccgtgcgaa 7800
agctcgccgt gacaaagctg tcgagctgctg gaagcagggg ttgaagtacc gggaaatcgc 7860
cgaagcgatg gaactctcga ccgggatcgt cggccgatta ctgcacgacg cccgcaggca 7920
cggcgagatt tcagcgagg atctgtcggc gtaaccaagt cagcgggttg tcgggttccg 7980
gccggcgctc ggcactcgga ccggccggcg gatgggttgc tgcctctggc gcagcgtcag 8040
ctaccgcccga aggccctgtca tcgaccggct tcgactgaag tatgagcaac gtcacagcct 8100
tgatttttggat gatccgctca cgctcgaccg ctacctgttc agctgccgccc cgctggcat 8160
gagcaacggc caactctcgt tcaa 8184

<210> 57

<211> 26

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:primer sHN389

<400> 57

tttataaag catggggact cgccgc 26

<210> 58

<211> 29

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:primer sHN390

<400> 58

gtagatctcc tccgactgca tcaacggcg 29
<210> 59
<211> 29
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:primer sHN391

<400> 59
accgttaacc atcagtactt ggcgtggtg 29
<210> 60
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:primer sHN321

<400> 60
gaagctgacc aagtctc 18
<210> 61
<211> 24
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence:primer sHN335

<400> 61

gcccgaggca catcgaaatt catg

24

<210> 62

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:primer sHN336

<400> 62

accgacacgt acgccgatga acga

24

<210> 63

<211> 30

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:primer sHN349

<400> 63

cagcatgaac gtgatgagga atgtcagaag

30

<210> 64

<211> 30

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:primer sHN351

<400> 64

ttcgaggctc tgctggtcac acgcatcgta 30

<210> 65

<211> 34

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:primer sHN361

<400> 65

aagagctctc tagacgcatac cgaaacctcc accc 34

<210> 66

<211> 21

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:primer sHN362

<400> 66

acaacatgaa ctccggatgtc c 21

<210> 67

<211> 21

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:primer sHN363

<400> 67

ccggactcat accggacatg g

21

<210> 68

<211> 32

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:primer sHN364

<400> 68

aaactagtca tggtcgctgt agtggaactc ac

32

<210> 69

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:primer sHN368

<400> 69

aacgttgtct ttatgttgaa tc

22

<210> 70

<211> 35

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:primer sHN373

<400> 70

aatgtacaag ttaacgaccg cgcggtccc ggacg 35

<210> 71

<211> 95

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:primer MCS-1a

<400> 71

catgggccac catcaccatc accatatggg aattctacgt agcggccgcg gatccaagct 60

tagatctctc gagcatcacc atcaccatca ctgaa 95

<210> 72

<211> 95

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:primer MCS-1b

<400> 72
ctagttcagt gatggtgatg gtgatgcgtc agagatctaa gcttggatcc gcggccgcta 60
cgtagaattc ccatatggtg atggtgatgg tggcc 95

<210> 73
<211> 98
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence:primer MCS-2a

<400> 73
tatggccat caccatcacc atcacgccc ggaaattcta cgtagcggcc gcggatccaa 60
gcttagatct ctcgagcatc accatcacca tcactgaa 98

<210> 74
<211> 100
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:primer MCS-2b

<400> 74
ctagttcagt gatggtgatg gtgatgcgtc agagatctaa gcttggatcc gcggccgcta 60
cgtagaattc ccatggcggt atggtgatgg tcatggccca 100

<210> 75
<211> 29
<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:primer sHN217

<400> 75

tgacgcccgtc cattataacct cctcacgtg

29

<210> 76

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:primer sHN218

<400> 76

gagaagggag cggccatggc

20

<210> 77

<211> 29

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:primer sHN395

<400> 77

tttgttaact agagtaacgg gctactccg

29

<210> 78

<211> 28

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:primer sHN396

<400> 78

aaggtaacctc aacgacagga gcacgatc 28

<210> 79

<211> 33

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:primer sHN397

<400> 79

actgttaacg catccgaaac ctccacccca ctc 33

<210> 80

<211> 34

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:primer sHN398

<400> 80

tggtaacctc gctgtatgg aactcaccga gcac 34

<210> 81
<211> 26
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:primer sHN147

<400> 81
cgtgtacata tcgaggcgaa ctccca 26

<210> 82
<211> 34
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:primer sHN376

<400> 82
tttcttagacg ccgtccatta tacctccctca cgtg 34
<210> 83
<211> 27
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:primer sHN388

<400> 83

aaagttaacg agagttggcc gttgctc

27

<210> 84

<211> 26

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:primer sHN120

<400> 84

gctgtacacc cgagaagctc ccagcg

26

<210> 85

<211> 32

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:primer sHN160

<400> 85

aacatatgta tatctccttc ttaaaggtaa ac

32

<210> 86

<211> 27

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:primer sHN337

<400> 86

aaccatggct agcaaaggag aagaact

27

<210> 87

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:primer sHN338

<400> 87

aagtgttggc caaggaacag gtag

24

<210> 88

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:primer sHN339

<400> 88

gtcactactt tctcttatgg

20

<210> 89

<211> 55

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:primer sHN340

<400> 89

ttagatctt agttagatggtg atggtagatgt ttgttagagct catccatgcc atgtg 55

<210> 90

<211> 5987

<212> DNA

<213> Rhodococcus erythropolis

<220>

<223> endogenous plasmid pRE8424

<400> 90

gaattcgcgt tgaagcccg cctctcgtag ctccattgcg acagtcgtgg agtcgtgcgc 60
gttttgaatg gtctgccagg agtgcgacag atccacagat gcctgcttga tgacctgcac 120
ctttcggttcg gtttcttgc gttgaatcat cgcgcaacc tcttcgttgc ccatacggac 180
agcttattga gtgatcaacc acaaaaagtg tgcagtcgtt gacggtttgt gcagcaactg 240
gacactacgc gatattatgt gtacggtttg aagtgttagat gaacaggtgt tgctgaatat 300
ggacacttaa gtcatcaagct gtatcgact cgatcgaagg aactcgcatg aatgttcagc 360
tcggaacgtc cctccccgtc gcaactaccg ctgatcgtt cccgggttgc gtggccggta 420
tggacgaccc gatcaagccg gtgcaggaca agctcactcc cgatggcgt gtgaagtatt 480
cgactgggtgc actgctccga gttgcacgca aagatggaac tggcgacg gataagacag 540
catccgtgca cgtcatcaac ccggcaatg agccgttgc cttcggcacg atctaccgag 600
cagaaggcct tgtctgggtg cagccctaca tgacggaaat ggatcgttgc gcactgtcca 660
tcacgggtcga gaacctgggtt ccaatgcctg cggcggccgt ctccgcacct gctcgtaaga 720
gcgcggacgc atgacaaagc tggtttacg aatcgcaata ccggttgttg ctttgctagt 780
cggaactgatt gttggtctga atattgttgg cacacaagag attaagctt ccagcggaaat 840

tggtcgaagg attcggtcct ggacaaggct tcttcgacca acccggacta cggcccaaaa 2700
tgatccgaac ggttcgcgt a ggtgagtaact cgacctacgc gagttacgtc gaaaacgcag 2760
acctcgcgta tgaagccgca ctgaacatcg accgagcaca acgaatgaca atgcctcgg 2820
aatacccaca tcttggcgac ataggctgac aaccgaacac acaggaggac ataccttgc 2880
cggttacccg acagacgcaa tcccggtaaa cacctatatt cgacagcaat ttgagaaggt 2940
tgcacatgag gcaggagaaa aacttgcgtc acgcccacgg aacgagtcgt 3000
aacgactgca ctccggatca aatcaggctg gccgaatgtat catctcgtaa taactgaaat 3060
actcagggcc agagtaggtt tggaaaggta agctgtcgtt gacgaacttc gcggcatgca 3120
gatcaccgat gacgacccgt gtgcactagt cggtccacga tgggtcgtt cgtatgaccgt 3180
gttcgcaatg tctgagctgc ttcttaggcga tgaactcgga aagctcaacg atttacgcgg 3240
tgacgattgg aaacgtgcta gtgactcagc tgctgaagtt ggacgatcac tgggccttaa 3300
atacgacatt tcggacagcg agggagccga acgagattgg tgcgctgctc gaggggcggc 3360
atgggctgtc gcaatgcgt aacacccgt gggacgcgtat ttgcgaaactc tgactgcacc 3420
gtggatcagt cttgtccgac cgaagttcgt tcaactcttc atggacaatg ctgatcgacc 3480
gtcatttgtt gcccaggctc acgacgagct atgcagccat tctggaggta atgcaattct 3540
gagtgcagca gatcagaggg ttgatgcgtg aagcacgaag ctacggattt catcctcggt 3600
ctagctgtcg gcatttacga tcatcgccgg cctgatctgt ggggtggaca tggatgtac 3660
ggttggattt acgctggta acgcgcgtaa tcgtctgaaa ttcttgctgc gatgtgctgc 3720
tattacaccc ccgactacgc ccgtgaagcc ggattcgaca ttgaagcact gggtaatac 3780
cggggctgt tcgatgcact ggtgaagaca agcagaaccc cggaagagaa ggctggcggt 3840
gtcgaagcat gggactcgc cgccggactag cggcttcccg acacgcgtt ctgaccagca 3900
gatcagcgat aaacgcgtt tctgctggtt aagtggataa aaaccaaata atcgatgaac 3960
ctcgaagtgg agtacccgag ctgaacttagc tggatttact ccgaaaatac gagcggcgac 4020
gaagggtgtt ggaccaccct gccgcccct tcgaggctcc tacttgacta ggaccccgct 4080
cggtatgacc agcgttaagtgc tgaacaccc ttccggcaaa gaccggcccc ctgtccgt 4140
gtcgtccgat aagcgcggca tccggcacga acttcgaccc aaacttcaac aaatcaccac 4200
gtcagaaact tttaatgcgt gcggccggcc gatttccggc gtgaacgggtg tgaccatcg 4260
caacggtccc aaaggttccg gatttggagg ctttcgtcc tgcggaaagg gctggatctg 4320
cccctgctgt gcggaaaag tcggcgac tgcggcagac gaaatttctc aagttgttgc 4380
tcatcaactc gggactggat ctgttgcgt ggtgaccatg accatgcgcc ataccgctgg 4440

210 91

<211> 8207

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:vector pTip-QT1

<400> 91

gagctcgacc ggcgggtcc cggacgggaa agagcgggaa gctttgccag agagcgacga 60
cttcccccttg cgttgggtat tgccggtcag ggcagccatc cgccatcgta gcgttagggta 120
tcacacccca ggaatcgctt cactgaacac agcagccgtt aggacgacca tgactgagtt 180
ggacaccatc gcaaattccgtt ccgatcccgc ggtgcagcgg atcatcgatg tcaccaagcc 240
gtcacgatcc aacataaaga caacgttgcgat cgaggacgtc gagccctca tgcacagcat 300
cgcggccggg gtggagttca tcgagggtcta cggcagcgtc agcagtcctt ttccatctga 360
gttgctggat ctgtgcgggc ggcagaacat accggccgcgat ctcatcgact cctcgatcg 420
caaccagtttgc ttcaaggggg agcggaaaggc caagacattc ggcattcgccc gcgtccctcg 480
cccgccagg ttccggcata tcgcaaggccg gcgtggggac gtgcgttca tcgacgggtt 540
gaagatcgtc gggaaacatcg ggcgtatgtt acgcacgtcg ctgcgtcgat gagcgtcggg 600
gatcatccttgc gtggacagtgc acatcaccatcg catcgccggac cggcgctccaaaggccag 660
ccgagggttac gtcttctccc ttcccgatgt tctctccgtt cgcgaggaggccatcgctt 720
cattcgccggac agcggatatgc agctgtatgc gctcaaggcg gatggcgaca ttccgtgaa 780
ggaactcggtt gacaatccgg atcggctggc cttgcgtgtc ggcagcgaaa agggtgggcc 840
ttccgaccttgc ttccggagg cgtttccgc ctgcgtttccatcgatgac tgcacaggaa 900
cgagtcttc aacgtttccg ttccctcgaaatcgatcgatgac cacgagaggatcgac 960
tctcgccggcc aaccgataag cgcctctgtt cctcgacgc tcggttccgc gacctcgatt 1020
cgtcagtgtatgc gatcacatcgatgac cacggcagcgatc accaccatgc acatatcgatgc 1080
gtggtccggg cgggcactcc tcgaaggcgcc ggcgcacgccc cttgaacgc tcgatgactc 1140
tagagtaacg ggctactccg tttaacggac cccgttctca cgctttaggc ttgaccccg 1200
aggctgcattgc gggcattccg ccgtgaaccc ggtggatgc cccggcacc cggccttcc 1260
agcaaagatc acctggcgcc gatgagtaag gcgtacagaa ccactccaca ggaggaccgt 1320
cgagatgaaa tctaacaatgc cgctcatcgatgac caccgtcaccc tggatgtgt 1380
aggcatagggc ttggttatgc cggtactgcc gggccttgc cggatatcg tccattccga 1440

cagcatcgcc agtcaactatg gcgtgcgtgc agcgctata gcgttgatgc aatttctatg 1500
cgcaccggcgtt ctcggagcac tgtccgaccg ctttggccgc cgcccagtc tgctcgcttc 1560
gctacttggc gccactatcg actacgcgtat catggcgacc acacccgtcc tgtggattct 1620
ctacgcccggc cgcacatcggtt cggcatcac cggcgccaca ggtgcgggtt cttggcccta 1680
tatcgccgac atcaccgtatg gggaaagatcg ggctcgccac ttctggctca tgagcgctt 1740
tttcggcggtt ggtatgggtgg caggccccgtt ggccggggga ctgttggcgcc ccatctcctt 1800
gcatgcacca ttcccttgcgg cggcggtgtt caacggccctc aacctactac tgggtgtt 1860
cctaattgcag gagtcgcata agggagagcg tcgtccgtatg ccccttggagag ctttcaaccc 1920
agtcagctcc ttccgggtggg cgcggggcat gactatcg tcgcactta tgactgtt 1980
ctttatcatg caactcgtag gacaggggtt ggcagcgctc tgggttcatgggaaatcttgc 2040
ccgccttcgc tggagcgca cgtatgttgc cctgtcgctt gcggtaattcg gaatcttgc 2100
cgccctcgctt caaggccctcg tcactgggtcc cggccaccaaa cgtttcggtt cggcgtt 2160
cattatcgcc ggcattggcg cgcacgcgtt gggctacgtt ttgttgggtt tcgcgtt 2220
aggctggatg gccttccccca ttatgattct tctcgcttcc ggcggcatcg ggttgcggcc 2280
gttgcaggcc atgctgttcca ggcaggtaga tgacgaccat cagggacagc ttcaaggatc 2340
gctcgccgtt cttaccagcc taacttcgtat cattggaccgtt ctgtatcgta cggcgattt 2400
tgccgcctcg gcgagcacat ggaacgggtt ggcattggatt gtggcgccg ccctataacct 2460
tgtctgcctc cccgcgttgc gtgcgggtgc atggagccgg gccacctcgat cctgaatgg 2520
agccggcgcc acctcgctaa cggatttacc actccaagaa ttggagccaa tcaatttttgc 2580
cgagagaactg tgaatgcgc aaccaaccct tggcagaaca tatccatcgat tcggccatc 2640
tccagcagcc gcacgcggcg catctcggtt acgttgggtt cctggccacg ggtgcgtt 2700
atcggtctcc tgcgtttagt gactagaatt gatctcctcg accgccaatt gggcatctga 2760
gaatcatctg cgtttctcgat acgcaacgtt cttgtcaacgt tgcaacttccat agtgttgc 2820
atcacaccc accgggggtt gggatttgcgtt tcaccgtt ggtgggtgc cccaggaaga 2880
tcacgtttac ataggagctt gcaatgagctt actccgtggg acaggtggcc ggcttcggcc 2940
gagtgacggtt ggcacgcgtt caccactacg acgacatcggtt cctgtcgat cggagcgagc 3000
gcagccacgc gggccaccgg cgctacagcg acgcccgtt cggccgggtt cggcgtt 3060
tgttctaccg ggagctggcc ttcccgctcg acgaggtgcgtt cggccctcgat gacgaccgg 3120
ccgcggaccgc ggcgcgcac ctgcggccgc accacgagctt gctgtccgc cggatcggtt 3180
aactgcagaa gatggcgccg ggcgtggagc aggacgttgc ggcacgcgtt atggaaatca 3240

acctcacccc ggaggagaag ttcgaggct tcggcgactt cgaccccgac cagtacgagg 3300
aggaggtccg ggaacgctgg gggAACACCG acgcctaccg ccagtccaag gagaagaccg 3360
cctcgtacac caaggaggac tggcagcgca tccaggacga ggccgacgag ctcacccggc 3420
gcttcgtcgc cctgatggac gcgggtgagc ccggcgactc cgagggggcg atggacgccc 3480
ccgaggacca ccggcagggc atgccccgca accactacga ctgcgggtac gagatgcaca 3540
cctgcctggg cgagatgtac gtgtccgacg aacgtttcac gcgaaacatc gacgcccggca 3600
agccgggcct cgcgcctac atgcgcgacg cgatcctcgc caacgcccgc cggcacaccc 3660
cctgagcgtt ggtcgtggcc cgggtctccc gcccggtctc accccacggc tcactccgg 3720
gccacgacca ccgcgtccc gtacgcgcac acctcggtgc ccacgtccgc cgcctccgtc 3780
acgtcgaaac ggaagatccc cgggtaccga gtcgtcagg tggcacttt cggggaaatg 3840
tgcgcggaac ccctattttgt ttattttct aaatacatc aaatatgtat ccgctcatga 3900
gacaataacc ctgataaatg cttcaataat attaaaaaag gaagagtgatg agtattcaac 3960
atttcgtgt cgccttatt ccctttttg cggcattttg cttcctgtt tttgctcacc 4020
cagaaacgct ggtgaaagta aaagatgctg aagatcagg gggtgcacga gtgggttaca 4080
tcgaactgga tctcaacagc ggtaagatcc ttgagagtt tcgccccgaa gaacgttttc 4140
caatgatgag cactttaaa gttctgtat gtggcgcggt attatccgt attgacgccc 4200
ggcaagagca actcggtcgc cgcatacact attctcagaa tgacttggtt gagtactcac 4260
cagtcacaga aaagcatctt acggatggca tgacagtaag agaattatgc agtgctgcca 4320
taaccatgag tgataacact gcggccaact tacttctgac aacgatcgga ggaccgaagg 4380
agctaaccgc tttttgcac aacatggggg atcatgtaac tcgccttgat cgttgggaac 4440
cgagctgaa tgaagccata ccaaacgacg agcgtgacac cacgatgcct gtagcaatgg 4500
caacaacgtt gcgc当地acta ttaactggcg aactacttac tctagcttcc cggcaacaat 4560
taatagacig gatggaggcg gataaagttt caggaccact tctgcgtcg gccctccgg 4620
ctggctggtt tattgtgtat aaatctggag ccggtgagcg tgggtctcgc ggtatcattt 4680
cagcactggg gccagatggt aagccctccc gtatcgtagt tatctacacg acggggagtc 4740
aggcaactat ggatgaacga aatagacaga tcgctgagat aggtgcctca ctgattaagc 4800
attggtaact gtcagaccaa gtttactcat atatactttt gattgatttta aaacttcatt 4860
ttaattttaa aaggatctag gtgaagatcc ttttgataa tctcatgacc aaaatccctt 4920
aacgtgagtt ttgcgtccac tgagcgtcag accccgtaga aaagatcaaa ggatcttctt 4980
gagatccttt tttctgcgc gtaatctgct gcttgcaaac aaaaaaaccac ccgctaccag 5040

cggtggtttg tttgccggat caagagctac caactcttt tccgaaggta actggcttca 5100
gcagagcgca gataccaaat actgttcttc tagtgttagcc gtagtttaggc caccacitca 5160
agaactctgt agcaccgcct acataacctcg ctctgcta at cctgttacca gtggctgctg 5220
ccagtggcga taagtctgtgt cttaaccgggt tggactcaag acgatagttt ccggataagg 5280
cgccagcggc gggctgaacg ggggttcgt gcacacagcc cagcttggag cgaacgac 5340
acaccgaact gagataccta cagcgtgagc tatgagaaag cgcacacgtt cccgaaggaa 5400
gaaaggcggaa caggtatccg gtaagcggca gggtcggaa ac aggagagcgc acgagggagc 5460
ttccaggggg aaacgcctgg tatcttata gtcctgtcgg gtttcggccac ctctgactt 5520
agcgtcgatt ttgtgtatgc tcgtcagggg ggcggagcct atgaaaaaac gccagcaacg 5580
cgccctttt acgggtcctg gcctttgct ggcctttgc tcacatgtt 5640
tatccccctga ttctgtggat aaccgtatta ccgcctttga gtgagctgat accgctcgcc 5700
gcagccgaac gaccgagcgc agcgagtcag tgagcgagga agcggaaagag cgcccaatac 5760
gcaaaaccgccc tctccccgca cgttggccga ttcatatc cagctggcac gactagatgc 5820
ccgctgaggc ggcgtagcag gtcagccgccc ccagcgggtgg tcaccaaccg gggtggaaacg 5880
gcgcggat cgggtgtgtc cgtggcgctc attccaaacct ccgtgtttt gtgcaggttt 5940
cgctgttgc agtccctcgc accggcaccc gcagcgaggg gtcacgggt gcccgggtt 6000
cgactagttc agtgtatggtg atgggtatgc tcgagagatc taagcttggaa tccgcggccg 6060
ctacgtagaa ttcccatatg gtgtatggta tggtgccca tggtatatct ccttcttaaa 6120
gttaaacaat attatttcta gacgccgtcc acgctgcctc ctacgtgac gtgaggtgca 6180
agcccgacg ttccgcgtgc cacgccgtga gccgcccgt gccgtcgct ccctcagccc 6240
ggcggccgt gggagccgc ctcgatatgt acacccgaga agctcccagc gtcctctgg 6300
gccgcgatac tcgaccacca cgcacgcaca ccgcactaac gattcggccg ggcgtcgatt 6360
cgccggcgc tcgattcggc cggcgctcga ttccgcggc gtcgattcg gccggcgctc 6420
gattcggccg agcagaagag tgaacaacca ccgaccacgc ttccgctctg cgcgcgtac 6480
ccgacccacc tcccgagct cgaaggcagct cccggagta ccgcgtact caccgcctg 6540
tgctcaccat ccaccgacgc aaagcccaac ccgagcacac ctcttgcacc aaggtgccga 6600
ccgtggctt ccgcgtcgac ggttccagaa gaaatcgaa gatccagcgc ggcaaggttc 6660
aaaaagcagg ggttgggg gaggagggtt tgggggggtt cgccggata cctgatatgg 6720
ctttgttttgc ctagtgcgaa taatttcca tatagcctcg ggcgtcgaa ctcgaatagt 6780
tgatgtggc gggcacagtt gccccatgaa atccgcaacg gggggcgtgc tgagcgatcg 6840

gcaatggcg gatgcggtgt tgcttccgca cggccgttc gcgacgaaca acctccaacg 6900
aggtcagtagc cggatgagcc gcgacgacgc attggcaatg cggtaacgtcg agcattcacc 6960
gcacgcgttg ctcggatcta tcgtcatcga ctgcgatcac gttgacgccc cgtgcgcgc 7020
attcgagcaa ccatccgacc atccggcgcc gaactgggtc gcacaatcgc cgtccggccg 7080
cgcacacatc ggtatgggtgc tcggcccaa ccacgtgtgc cgacccgaca ggcggccact 7140
gacgccactg cgctacgccc accgcatcga aaccggctc aagatcagcg tcggccgca 7200
tttcgcgtat ggcggcaac tgacaaaaaa cccgattcac cccgattggg agacgatcta 7260
cgccccggcc accccgtaca cattgcccga gctggccacc atccacacac cccggcagat 7320
gccgcgtcgg cccgatcggg ccgtggcct gggccgcaac gtcaccatgt tcgacgccac 7380
ccggcgatgg gcataccgc agtgggtggca acaccgaaac ggaaccggcc ggcactggga 7440
ccatctcgctc ctgcagcaact gccaacccgt caacaccgag ttacgacac cactggcg 7500
caccgaagta cgccaccg cgcaatccat ctccaaatgg atcggcgca atttaccgaa 7560
agaacagtac cgagccgac aagcgcatct cggtaaaaaa ggcggcaagg caacgacact 7620
cgccaaacaa gaagccgtcc gaaacaatgc aagaaagtac gacgaacata cgtgcgaga 7680
ggcgattatc tggatggcg agccaaaaat ccgggtgcgca gaaagatgac ggcaggcagca 7740
gcagccgaaa aattcggtgc ctccactcgc acaatccaaac gcttggggc tgagccg 7800
gacgattacc tcggccgtgc gaaagctcgc cgtgacaaag ctgtcgagct gcggaagcag 7860
gggttgaagt accggaaat cgccgaagcg atggaactct cgaccggat cgtcgccg 7920
ttactgcacg acgccccgac gcacggcgag atttacggg aggatctgtc ggcgttaacca 7980
agttagcg 8040
ttgtcggtt ccggccggcg ctggcactc ggaccggccg gggatgg 8100
ttctgcctct ggcgcagcgt cagctaccgc cgaaggcctg tcatgaccg gcttcgactg 8160
aagtatgagc aacgtcacag cctgtgattt gatgatccgc tcacgctcga ccgctacctg 8207
ttcagctgcc gcccgtggg catgagcaac ggccaaactct cgttcaa

<210> 92

<211> 8211

<212> DNA

<213> Artificial Sequence

<220>

〈223〉 Description of Artificial Sequence:vector pTip-QT2

<400> 92

gagctcgacc ggcgggtcc cggacgggga agagcgggga gctttgccag agagcgacga 60
cttcccccttg cggtggtgat tgccggtcag ggcagccatc cgccatcgac gcgttagggtg 120
tcacacccca ggaatcgct cactgaacac agcagccgt aggacgacca tgactgagtt 180
ggacaccatc gcaaattcggt ccgatcccgc ggtgcagcgg atcatcgatg tcaccaagcc 240
gtcacgatcc aacataaaga caacgttgat cgaggacgtc gagccctca tgacacagcat 300
cgccggccggg gtggagttca tcgaggtcta cggcagcgtc agcagtcctt ttccatctga 360
gttgctggat ctgtgcgggc ggcagaacat accggtccgc ctcatcgact cctcgatcg 420
caaccagtttgc ttcaaggggg agcggaaaggc caagacatc ggcacgcggc gctccctcg 480
cccgccagg ttcggcgata tcggcggccg gcgtggggac gtcgtcggtc tcgacgggt 540
gaagatcgac gggaaacatcg ggcgtatgt acgcacgtcg ctgcgcgtcg gagcgtcg 600
gatcatcctg gtggacagtgc acatcaccag catcgccgtc cggcgtctcc aaaggccag 660
ccgagggttac gtcttctccc ttcccgctgt tctctccggc cgcgaggagg ccatcgccctt 720
cattcgggac agcggtatgc agctgtatgc gctcaaggcg gatggcgaca ttccgtgaa 780
ggaactcggg gacaatccgg atcggctggc cttgtgttc ggcagcgaaa agggtgggccc 840
ttccgacctg ttggaggagg cgtcttccgc ctgggttcc atccccatga tgagccagac 900
cgagtctctc aacgtttccg ttccctcgaa atcgcgtcg cacgagagga tcgacaggaa 960
tctcgccggc aaccgataag cgcctctgtt cctcgacgc tcggttccctc gacctcgatt 1020
cgtcagtgtatgc gatcacctca cacggcagcg atcaccactg acatatcgag gtcaacggtc 1080
gtggtccggg cgggcactcc tcgaaggcgcc ggccgacgccc ctgtacgcac tcgatgactc 1140
tagagtaacg ggctactccg tttaacggac cccgttctca cgcttttaggc ttgaccccg 1200
agcctgcattg gggcattccg ccgtgaaccc ggtggaaatgc cccggcacc cgggcttcc 1260
agcaaagatc acctggcgcc gatgagtaag gcgtacagaa ccactccaca ggaggaccgt 1320
cgagatgaaa tctaacaatg cgctcatcgat catcctcgac accgtcaccc tggatgctgt 1380
aggcatagggc ttgggtatgc cggtactgcc gggcccttttg cgggatatcg tccattccga 1440
cagcatcgcc agtcaactatg gcgtgctgtc agcgctatgc gcgttgcgtc aatttctatg 1500
cgcacccgtt ctggagcac tggccgaccg ctttggccgc cgcccagtc tgctcgcttc 1560
gctacttgaa gcaactatcg actacgcgtatcatggcggacc acaccgtcc tggtggattct 1620

ctacgcccga cgcatcgigg ccggcatcac cggccacaca ggtgcggttg ctggcccta 1680
tatcgccgac atcaccgatg ggaaagatcg ggctgccac ttcgggtca tgagcgctt 1740
tttcggcgtg ggtatggtgg caggccccgt ggccggggga ctgttggcg ccatccctt 1800
gcatgcacca ttcccttgcgg cggcggtgct caacggcctc aacctactac tgggtcgctt 1860
cctaatgcag gagtcgcata agggagagcg tcgtccgatg cccttggagag ccttcaaccc 1920
agttagtcc ttccggtggg cgccggcat gactatcgctt gccgcactta tgactgtctt 1980
ctttatcatg caactcgtag gacaggtgcc ggcagcgctt tgggtcattt tcggcgagga 2040
ccgccttcgc tggagcgcga cgatgatcggt cctgtcgctt gcggatttcg gaatcttgc 2100
cgccctcgct caagccctcg tcactggtcc cgccaccaaa cggttgcggc agaagcaggc 2160
cattatcgcc ggcattggcgg ccgacgcgtt gggctacgtt ttgttgcgtt tcgcgacgcg 2220
aggctggatg gccttccccca ttatgattct tctcgcttcc ggccggcatcg ggtatggccgc 2280
gttgcaggcc atgctgtcca ggcaggtaga tgacgaccat cagggacagc ttcaaggatc 2340
gctcgccgtt cttaccagcc taacttcgtat cattggaccg ctgatcgta cggcgattta 2400
tgccgcctcg gcgagcacat ggaacgggtt ggcattggatt gtggcgccg ccctataacct 2460
tgtctgcctc cccgcgttgc gtcgcgggtgc atggagccgg gccacccgtt cctgaatgg 2520
agccggcggc acctcgctaa cggattcacc actccaagaa ttggagccaa tcaatttttgc 2580
cgagagaactg tgaatgcgcgaa aaccaaccct tggcagaaca tatccatcgctt gtcgcgcattc 2640
tccagcagcc gcacgcggcg catctcggtt acgttgggtt cctggccacg ggtgcgcgtt 2700
atcgtgtcc tgcgtttagt gactagaattt gatctcctcg accgccaattt gggcatctgaa 2760
gaatcatctg cgtttctcgac acgcaacgtt cttgcaacgt tgcaactcctt agtgttgtga 2820
atcacacccacc accgggggtt gggattgcgtt tcaccgattt ggtgggtgcg cccaggaaga 2880
tcacgtttac ataggagctt gcaatgagctt actccgtggg acaggtggcc ggcttcgcgg 2940
gagtgacggtt ggcacgcgtt caccactacg acgacatcggtt cctgctcgta cggagcgagc 3000
gcagccacgc gggccacccgg cgctacagcg acgcccgtt cggccggctt cagcagatcc 3060
tgttctaccg ggagctgggc ttcccgctcg acgagggtgcg cgcctcgctt gacgaccgg 3120
ccgcggaccc ggcgcgcac ctgcgcgcac agcacgagctt gctgtccgcg cggatcggtt 3180
aactgcagaa gatggcggcg gccgtggagc aggcgatggaa ggcacgcagc atggaaatca 3240
acccacccacc ggaggagaag ttcgagggtct tcggcgatctt cggccgttccgac cagtcgagg 3300
aggagggtccg ggaacgcgtt gggaaacaccg acgcctaccg ccagtcgaag gagaagaccg 3360
cctcgtaacac caaggaggac tggcagcgca tccaggacga ggccgcacgag ctcaccggc 3420

gcttcgtcgc cctgatggac gcgggtgagc cggccgactc cgagggggcg atggacgccc 3480
ccgaggacca cggcagggc atcgcccgca accactacga ctgcgggtac gagatgcaca 3540
cctgcctggg cgagatgtac gtgtccgacg aacgtttcac gcgaaacatc gacgcccaca 3600
agccgggcct cgccgcctac atgcgcgacg cgatcctcgc caacgcccgc cggcacaccc 3660
cctgagcgtt ggtcggtggcc cgggtctccc gcccggtctc accccacggc tcactccgg 3720
gccacgacca cggccgtccc gtacgcgcac acctcggtgc ccacgtccgc cgcctccgtc 3780
acgtcgaaac ggaagatccc cgggtaccga gctcgtaagg tggactttt cggggaaatg 3840
tgcgcggaac ccctatttgt ttattttct aaatacattc aaataatgtat ccgcctcatga 3900
gacaataacc ctgataaaatg ctcaataat attaaaaaag gaagagtgatg agtattcaac 3960
atttccgtgt cggcccttatt ccctttttg cggcattttgc cttcctgtt tttgctcacc 4020
cagaaacgct ggtgaaagta aaagatgctg aagatcagg gggtgacga gtgggttaca 4080
tcgaactgga tctcaacagc ggtaagatcc ttgagagtt tcgccccgaa gaacgttttc 4140
caatgatgag cactttaaa gttctgctat gtggcgcgtt attatccgtt attgacgccc 4200
ggcaagagca actcggtcgc cgcatacact attctcagaa tgacttggtt gagtactcac 4260
cagtcacaga aaagcatctt acggatggca tgacagtaag agaattatgc agtgctgcca 4320
taaccatgag tgataacact gcggccaact tacttctgac aacgatcgga ggaccgaagg 4380
agctaaccgc tttttgcac aacatggggg atcatgtaac tcgccttgc cgttggaac 4440
cgagctgaa tgaagccata ccaaacgacg agcgtgacac cacgatgcct gttagcaatgg 4500
caacaacgtt gcgcaaacta ttaactggcg aactacttac tctagcttcc cggcaacaat 4560
taatagactg gatggaggcg gataaagttt caggaccact tctgcgctcg gccctccgg 4620
ctggctgggtt tattgctgat aaatctggag ccggtgagcg tgggtctcgc ggtatcattt 4680
cagcactggg gccagatggtt aagccctccc gtatcgtagt tatctacacg acggggagtc 4740
aggcaactat ggatgaacga aatagacaga tcgctgagat aggtgcctca ctgattaagc 4800
attggtaact gtcagaccaa gtttactcat atatacttta gattgatttta aaacttcatt 4860
tttaattttaa aaggatctag gtgaagatcc ttttgataa tctcatgacc aaaatccctt 4920
aacgtgagtt ttcgttccac tgagcgtcag accccgtaga aaagatcaaa ggatcttctt 4980
gagatccctt tttctgcgc gtaatctgct gcttgcaaac aaaaaaaacca cggctaccag 5040
cggtgggtttt tttgccggat caagagctac caactcttt tccgaaggta actggcttca 5100
gcagagcgca gataccaaat actgttcttc tagttagcc gtagtttaggc caccacttca 5160
agaactctgtt agcaccgcct acatacctcg ctctgctaatt cctgttacca gtggctgctg 5220

ccagtggcga taagtgcgtt cttaccgggt tggactcaag acgatagttt ccggataagg 5280
cgcagcggtc gggctgaacg gggggttcgt gcacacagcc cagcttggag cgaacgacct 5340
acaccgaact gagataccta cagcgtgagc tatgagaaag cgccacgctt cccgaaggga 5400
gaaaggcggc caggtatccg gtaagcggca gggtcggaac aggagagcgc acgagggagc 5460
ttccaggggg aaacgcctgg tatcittata gtcctgtcgg gtttcgcac cictgacttg 5520
agcgtcgatt ttgtgatgc tcgtcagggg ggcggagcct atggaaaaac gccagcaacg 5580
cggcctttt acggttcctg gcctttgct ggcctttgc tcacatgttc ttccitgcgt 5640
tatccccgttga ttctgtggat aaccgtattt ccgcctttga gtgagctgat accgctcgcc 5700
gcagccgaac gaccgagcgc agcgagtcag tgagcgagga agcggaaagag cgcccaatac 5760
gcaaaccgccc tctccccgctg cgttggccga ttcatatgtt cagctggcac gactagagtc 5820
ccgctgagggc ggcgttagcag gtcagccgccc ccagcgggtgg tcaccaaccg gggtggaaacg 5880
cgcccggtat cgggtgtgtc cgtggcgctc attccaaacct ccgtgtgtt gtgcagggtt 5940
cgcgtgttgc agtccctcgc accggcaccc gcagcgaggg gtcacgggt gccgggtgggt 6000
cgactagttt agtgtatggtg atggtgatgc tcgagagatc taagcttggta tccgcggccg 6060
ctacgttagaa ttccatggc gtgatggta tggtgatggc ccatatgtat atctcccttct 6120
taaagttaaa caaaattatt tctagacgcc gtcacgcctg ctccttcacg tgacgtgagg 6180
tgcaagcccg gacgttccgc gtgccacgcc gtgagccgccc gcgtgcccgtc ggctccctca 6240
gcccggcgg ccgtgggagc ccgcctcgat atgtacaccc gagaagctcc cagcgtcctc 6300
ctggccgccc atactcgacc accacgcacg cacaccgcac taacgattcg gccggcgctc 6360
gattcggccg gcgctcgatt cggccggcgc tcgattcggc cggcgctcga ttccggccggc 6420
gctcgattcg gccgagcaga agagtgaaca accaccgacc acgcttccgc tctgcgcgcc 6480
gtacccgacc taccicccgc agctcgaagc agctccggg agtaccgccc tactcacccg 6540
cctgtgctca ccatccaccc acgcaaagcc caacccgagc acaccccttg caccaaggtt 6600
ccgaccgtgg ctcccgctc gcaggggtcc agaagaaatc gaacgatcca ggcggcaag 6660
gttcaaaaag caggggttgg tggggaggag gttttggggg gtgtcgccgg gataacctgtat 6720
atggcttgcgtt tttgcgtat cgaataattt tccatatacg ctgcgcgcgt cggactcgaa 6780
tagttgtatgt gggcgccac agttgccttca taaaatccgc aacggggggc gtgcgtgagc 6840
atcgcaatg ggcggatgcg gtgttgcctc cgcacccggcc gttcgccgacg aacaacctcc 6900
aacgaggtca gtaccggatg agccgcgacg acgcattggc aatgcggta cgtcggcatt 6960
caccgcacgc gtgcgtcgat tctatcgta tcgactgcga tcacgttgc gccgcgtatgc 7020

gcccattcga gcaaccatcc gaccatccgg cgccgaactg ggtcgaccaa tcgcccgtccg 7080
gccgcgcaca catcgatgg tggctcgcc ccaaccacgt gtgccgcacc gacagcgccc 7140
gactgacgcc actgcgtac gcccaccgca tcgaaaccgg cctcaagatc agcgtcggcg 7200
gcgatttcgc gtatggcgaa caactgacca aaaaccgat tcaccccgat tggagacga 7260
tctacggccc ggccaccccg tacacattgc ggcagctggc caccatccac acacccggc 7320
agatgcccg tcggcccgat cggccgtgg gcctggccg caacgtcacc atgttcgacg 7380
ccacccggcg atggcatac ccgcagtggt ggcaacacccg aaacggaacc ggccgcact 7440
gggaccatct cgtcctgcag cactgccacg ccgtcaacac cgagttcacg acaccactgc 7500
cgittcaccga agtacgcgc accgcgaat ccatctccaa atggatctgg cgcaatttca 7560
ccgaagaaca gtaccgagcc cgacaagcgc atctcggtca aaaaggcgcc aaggcaacga 7620
cactcgccaa acaagaagcc gtccgaaaca atgcaagaaa gtacgacgaa catacgatgc 7680
gagaggcgat tatctgatgg gcggagccaa aaatccggtg cgccgaaaga tgacggcagc 7740
agcagcagcc gaaaaattcg gtgcctccac tcgcacaatc caacgcttgt ttgctgagcc 7800
gcgtgacgat tacctcggcc gtgcgaaagc tcgccgtgac aaagctgtcg agctgcggaa 7860
gcaggggttg aagtaccggg aaatcgccga agcgatggaa ctctcgaccg ggatcgtcgg 7920
ccgattactg cacgacgccc gcagggcacgg cgagatttca gcggaggatc tgtcggcgta 7980
accaagttag cgggttgtcg gttccggcc ggcgcgtcggc actcgaccg gcccggat 8040
ggtgttctgc ctctggcgca gcgtcagcta ccgccgaagg cctgtcatcg accggcttcg 8100
actgaagtat gagcaacgtc acagccgtg attggatgat ccgctcacgc tcgaccgcta 8160
cctgtttagc tgccgcccgc tggcatgag caacggccaa ctctcggttca a 8211

<210> 93

<211> 8275

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:vector pTip-RT1

<400> 93

gttaacgacc gcgcgggtcc cggacgggga agagcgggga gcttgcacag agagcgacga 60

cttccccttg cgttggtgat tgccggtcag ggcagccatc cgccatcgac gcgttagggtg 120
tcacacccca ggaatcgctg cactgaacac agcagccgtt aggacgacca tgactgagtt 180
ggacaccatc gcaaattccgtt ccgatcccgc ggtgcagcgg atcatcgatg tcaccaagcc 240
gtcacgatcc aacataaaga caacgttgat cgaggacgtc gagccctca tgcacagcat 300
cgccggccggg gtggagttca tcgaggtcta cggcagcgc acgagtccctt ttccatctga 360
gttgctggat ctgtgcggc ggcagaacat accggccgc ctcatcgact cctcgatcg 420
caaccagtttgc ttcaaggggg agcggaaaggc caagacatc ggcacatgcgc gcgtccctcg 480
cccgccagg ttcggcgata tcgcaagccg gcgtggggac gtcgtcggtc tcgacgggtt 540
gaagatcgac gggaaacatcg ggcgcataatgt acgcacgtcg ctgcgcgtcg gagcgtcggg 600
gatcatcctg gtggacagtg acatcaccag catcgccgc cggcgtctcc aaaggccag 660
ccgaggttac gtcttcctcc ttcccgctgt tctctccgtt cgcgaggagg ccatcgccctt 720
cattcggttac agcggatgtc agctgtatgac gctcaaggcg gatggcgaca ttccgtgaa 780
ggaactcggtt gacaatccgg atcggctggc ttgcgtgtc ggcagcgaaa agggtgggcc 840
ttccgacctg ttcgaggagg cgtctccgc ctgcgtttcc atcccatga tgagccagac 900
cgagtctctc aacgtttccg ttccctcgg aatcgccgtc cacgagagga tcgacaggaa 960
tctcgccggcc aaccgataag cgcctctgtt ctcggacgc tcggttctc gacctcgatt 1020
cgtcagtgtatgatc acgttccgttccg aatcgccgtc cacgagagga tcgacaggaa 1080
gtggccggg cgggcactcc tcgaaggcgc ggccgacgcc cttaacgcac tcgatgactc 1140
tagagtaacg ggctactccg tttaacggac cccgttctca cgcttaggc ttgacccgg 1200
agccctgcattg gggcattccg ccgtgaaccc ggtggatgc cccggcacc cgggcttcc 1260
agcaaaagatc acctggcgcc gatgagtaag gcgtacagaa ccactccaca ggaggaccgt 1320
cgagatgaaa tctaacaatg cgctcatcgat catcctcgac accgtcaccc tggatgctgt 1380
aggcatagggc ttggttatgc cggtactgcc gggcctcttg cggatatgc tccattccga 1440
cagcatcgcc agtcaatcgat gcgtgcgtct agcgctatgc gcgttgcgtc aatttctatg 1500
cgccacccgtt ctcggagcac tgtccgaccg ctttggccgc cgcccgatcc tgctcgcttc 1560
gctacttggc gccactatcg actacgcgtat catggcgacc acacccgtcc tggatgttct 1620
ctacgcccggc cgcacatcgat ccggcattcac cggcgccaca ggtgcgggttgc ctggcgccata 1680
tatcgccgac atcaccgtatg ggaaagatcg ggctcgccac ttggggctca tgagcgcttg 1740
tttcggcggtg ggtatgggtgg caggccccgt ggccggggga ctgttggcgc ccatctccctt 1800
gcatgcacca ttcccttgcgg cggcggtgttgc caacggccctc aacctactac tgggctgctt 1860

cctaattgcag gagtcgcata agggagagcg tcgtccgatg cccttgagag cttcaaccc 1920
agttagctcc ttccgggtggg cgccgggcat gactatgcgc gccgcactta tgactgtctt 1980
ctttatcatg caactcgtag gacaggtgcc ggcagcgctc tgggtcattt tcggcgagga 2040
ccgccttcgc tggagcgcga cgatgatcgg cctgtcgctt gcggtattcg gaatcttgca 2100
cgccctcgct caaggcttcg tcacttggcc cgccaccaaa cgtttcggcg agaaggcaggc 2160
cattatcgcc ggcattggcg ccgacgcgtt gggctacgc ttgttggcgt tcgcgacgcg 2220
aggcttggatg gccttccccca ttatgattct tctcgcttc ggccatcg ggtatccccgc 2280
gttgcaggcc atgcgttcca ggcaggtaga tgacgaccat cagggacagc ttcaaggatc 2340
gctcgccgtt cttaaccagcc taacttcgtat cattggaccg ctgatcgta cggcgattta 2400
tgccgcctcg gcgagcacat ggaacgggtt ggcattggatt gttaggcgcgc ccctataacct 2460
tgtctgcctc cccgcgttgc gtcgcgggtgc atggagccgg gccacccgtcga cctgaatgg 2520
agccggcggc acctcgctaa cggattcacc actccaagaa ttggagccaa tcaattcttgc 2580
cggagaactg tgaatgcgcgca aaccaaccct tggcagaaca tatccatcg tcgcgcac 2640
tccagcagcc gcacgcggcg catctcggttgc agcgttgggt cctggccacg ggtgcgcgt 2700
atcgtgttcc tgcgtttag gactagaatt gatcttcgttgc accgccaatt gggcatctga 2760
gaatcatctg cgtttctcgca acgcaacgtt cttgcaacgt tgcaactcctt agtgttgtga 2820
atcacacccc accgggggtt gggattgcag tcaccgattt ggtgggtgcg cccaggaaga 2880
tcacgtttac ataggagctt gcaatgagct actccgtggg acaggtggcc ggcttcgcgc 2940
gagtgacggt ggcacgcgtt caccactacg acgacatcg cctgctcgta ccgagcgagc 3000
gcagccacgc gggccaccgg cgctacagcg acgcccaccc cgaccggctg cagcagatcc 3060
tgttctaccg ggagctggc ttcccgctcg acgaggtgcg cgcctcgctc gacgaccgg 3120
ccgcggaccc ggcgcgcac ctgcgcgcac agcagcgactt gctgtccgcg cggatcg 3180
aactgcagaa gatggcggcg ggcgtggagc aggcgatggc ggcacgcagc atggaaatca 3240
acctcaccctt ggaggagaag ttcgaggatct tcggcgactt cgaccccgac cagtacgagg 3300
aggaggtccg ggaacgcgtt gggacaccgg acgcctaccg ccagtccaaag gagaagaccg 3360
cctcgtaacac caaggaggac tggcagcgca tccaggacga ggccgacgag ctcacccggc 3420
gcttcgttgc cctgtatggac ggcgggtggc cgcggactt cggatggcg atggacgcgc 3480
ccgaggacca ccggcaggggc atgcggccca accactacga ctgcgggtac gagatgcaca 3540
cctgccttggg cgagatgtac gtgtccgacg aacgtttcac ggcacacatc gacgcccaca 3600
agccgggcctt cggccctac atgcgcgacg cgatccgttgc caacgcgttgc cggcacaccc 3660

cctgagcgtt ggtcggtggcc cgggtctccc gcccggtctc accccacggc tcactccgg 3720
gccacgacca ccggccgtccc gtacgcgcac acctcggtgc ccacgtccgc cgcctccgtc 3780
acgtcgaaac ggaagatccc cgggtaccga gctcgtcagg tggactttt cggggaaatg 3840
tgcgcggaac ccctatttgc ttattttctt aaatacatc aaataatgtat ccgctcatga 3900
gacaataacc ctgataaaatg cttcaataat attgaaaaag gaagagtatg agtattcaac 3960
atttccgtgt cgcccttattt ccctttttg cggcatttg cttcctgtt tttgctcacc 4020
cagaaacgct ggtgaaagta aaagatgctg aagatcgtt gggtgacga gtgggttaca 4080
tcgaactgga tctcaacagc ggtaagatcc ttgagagtt tcgcggcggaa gaacgtttc 4140
caatgatgag cactttaaa gttctgtat gtggcgcgtt attatccgtt attgacgccc 4200
ggcaagagca actcggtcgc cgcatacact attctcagaa tgacttggtt gagtactcac 4260
cagtcacaga aaagcatctt acggatggca tgacagtaag agaattatgc agtgctgcca 4320
taaccatgag tgataaacact gcggccaact tacttctgac aacgatcgga ggaccgaagg 4380
agctaaccgc tttttgcac aacatggggg atcatgtaac tcgccttgat cggtggaaac 4440
cgtagctgaa tgaagccata ccaaacgacg agcgtgacac cacgatgcct gttagcaatgg 4500
caacaacgtt ggcgaaacta ttaactggcg aactacttac tctagcttcc cgcaacaat 4560
taatagactg gatggaggcg gataaagttt caggaccact tctgcgtcg gccctccgg 4620
ctggctgggtt tattgctgtat aaatctggag ccggtgagcg tgggtctcg ggtatcattt 4680
cagcactggg gccagatggt aagccctccc gtatcgtagt tatctacacg acggggagtc 4740
aggcaactat ggatgaacga aatagacaga tcgctgagat aggtgcctca ctgattaagc 4800
attggtaact gtcagaccaa gtttactcat atatacttta gattgatttta aaacttcatt 4860
tttaattttaa aaggatctag gtgaagatcc ttttgataa tctcatgacc aaaatccctt 4920
aacgtgagtt ttcgttccac tgagcgtcag accccgtaga aaagatcaaa ggatcttctt 4980
gagatcctt tttctgcgc gtaatctgt gcttgcaaac aaaaaaaccac cgctaccag 5040
cggtggtttgc tttggccggat caagagctac caactttt tccgaaggta actggcttca 5100
gcagagcgcac gataccaaat actgttcttc tagttagcc gtagtttaggc caccacttca 5160
agaactctgtt agcaccgcct acataacctg ctctgctaattt cctgttacca gtggctgctg 5220
ccagtgccgta taagtcgtgt cttaccgggt tggactcaag acgatagttt ccggataagg 5280
cgcagcggcgc gggctgaacg ggggggtcgt gcacacagcc cagcttggag cgaacgaccc 5340
acaccgaact gagataaccta cagcgtgagc tatgagaaag cgccacgctt cccgaaggaa 5400
gaaaggcgga caggtatccg gtaagcggca gggtcggaaac aggagagcgc acgagggagc 5460

ttccaggggg aaacgcctgg tatcttata gtcctgtcgg gttcgccac ctctgacttg 5520
agcgtcgatt tttgtgatgc tcgtcagggg ggcggagcct atgaaaaaac gccagcaacg 5580
cggcctttt acggttcctg gcctttgct ggcctttgc tcacatgttc tttccgt 5640
tatcccctga ttctgtggat aaccgttata ccgccttga gtgagctgat accgctcgcc 5700
gcagccgaac gaccgagcgc agcgagtcag tgagcgagga agcggaaagag cgcccaatac 5760
gcaaaccgcc tctccccgct cgttggccga ttcattaaatg cagctggcac gactagagtc 5820
ccgctgaggc ggcgttagcag gtcagccgcc ccagcggtgg tcaccaaccg gggtggaaacg 5880
gcgcggat cgggtgtgtc cggtggcgtc attccaaacct ccgtgtgtt gtgcagggtt 5940
cgcgtgtgc agtccctcgc accggcaccc gcagcgaggg gctcacgggt gccggtgggt 6000
cgactagttc agtgtatggtg atggatgtgc tcgagagatc taagcttggta tccggcccg 6060
ctacgtagaa ttcccatatg gtgatggta tggggccca tggatatact ccttcttaaa 6120
gttaaacaat attatttcta gacgcccgtcc acgctgcctc ctacgtgac gtgagggtgca 6180
agcccggaacg ttccgcgtgc cacgcccgtga gccgcccgt gccgtcggt ccctcagccc 6240
ggcgcccggt gggagccgc ctcgataatgt acaagcatgg ggactcgccg cggactagcgt 6300
gcttcccgac acgcccgtact gaccagcaga tcagcgataa acgctgttc tgctggtaa 6360
gtggataaaa accaaataat cgatgaacct cgaagtggag tatccgagct gaactagctg 6420
gatttactcc gaaaatacga gcggcgacga agggtgttgg accaccctgc cgccgccttc 6480
gaggctccta ttgacttagg accccgctcg ttatgaccag cgtaagtgtc gaacaccttt 6540
ccggcaaaga ccggccccct gtcctcggt cgtccgataa gcgcggcatc cggcacgaac 6600
ttcgacccaa acttcaacaa atcaccacgt cagaaacttt taatgcgtgc ggccggccga 6660
tttccggcgt gaacgggttg accatcgta acggtccaa aggttccgga tttggaggcc 6720
ttcgctccctg cggaaagggc tggatctgcc cctgctgtgc gggaaaagtc ggccacatc 6780
gagcagacga aatttctcaa ttgttgctc atcaactcgg gactggatct ttgcgtatgg 6840
tgaccatgac catgcgccat accgctggc acgctttgca tgatttggacttggacttt 6900
cggcagcctg gaaagctgctg accaatggcc gccgatggcg taccgaacgt gaaatgtacg 6960
gctgctgacgg atacgtacga gctgttgaaa tcactcacgg aaaaaacggt tggcacgttc 7020
acgtccacgc tctactcatg ttcaagcggtg acgtgagtgatc gaacatccctc gaatccttc 7080
cggatgcgtatc ttgcgtatgg tggacccca aactcggtc tctgggattt gctgcgccac 7140
tacgttaattc aggtggactc gacgtaaagaa agattggtg agaagctgac caagtctcg 7200
ctgcataacct gacgaaaatt gcatccgggg tcggcatgga agtccggcgtt ggcgacggaa 7260

aaagtggicg gcacggcaac cgtgcacctt gggaaatgc cgttgatgca gtcggaggag 7320
atccacaagc gtggaaactc tggcgcgagt ttgagttcggt tcgatggga cgccgagcaa 7380
tcgcattggtc tcgtggactg cgcgcccgag ctggtcttgg cgtagaactc acggatgctc 7440
agattgtcga acaggaagaa tctgccccgg tcatggttgc gatcattccg gctcggtcct 7500
ggatgtatgt tcgaaactgt gcgccttacg ttttcggaga gatccttggc ctcgttggaaag 7560
cgggcgcgac ctggaaaac ctgcgtgacc acttgcattt tcgattgcct gcagcggatg 7620
tgcggccctcc gataataatcg attcgtaagt gaaatgtctt ggtgtcaac aacttcaact 7680
cgtatgaacc acacttgggg gcatcccccc gatacttgcc gctttgaagc tgggtgtctc 7740
tctgtcaggg ctgcgatagc accgcgttagc ggcttggcct tgacagagag acggcctgtt 7800
tcatggttgg tctcgggggg ctgaccgggc agatagaaaa aggccggccg atttggctgc 7860
cgactattt tgcaggtaaa cccatctcat gagcatcaat gaacgtcccg ttggatcg 7920
agcgaatgca gcttcggtag acgtcgatgg cgttgtgtatc tctcgcttta 7980
tgggcaagaa atcacfctag atcgagatga tgcgttccta ctcctcgatc gacttcagga 8040
cgcgttgcga cctcaagcca actaagaacc ctccagatgg tctaaacgag gcgcaaactc 8100
gctcctggc ctgcggcggc agcacccgaag cgcgagcgaag gcggagcgcg taggtggggg 8160
agccitgcggg cagcggcggc ggagccgccc ccttggtaat aggtgatcat cggggccata 8220
gcaggtcaga ggtttttt acgtgactc atgctcacca cgccaaagtac tggatg 8275

<210> 94

<211> 8279

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:vector pTip-RT2

<400> 94

gttaacgacc gcgcgggtcc cggacgggga agagcgggga gcttgcac agagcgcacga 60
ctcccccttg cttttgtat tgccggtcag ggcagccatc cgccatcgat gcgttagggtg 120
tcacacccca ggaatcgctt cactgaacac agcagccgtt aggacgacca tgactgat 180

ggacaccatc gcaaatccgt ccgatccgc ggtgcagcgg atcatcgatg tcaccaagcc 240
gtcacgatcc aacataaaga caacgttgcgat cgaggacgtc gagccctca tgcacagcat 300
cgccggccggg gtggagttca tcgaggtcta cggcagcgc acgagtcctt ttccatctga 360
gttgctggat ctgtgcgggc ggcagaacat accggccgc ctcatcgact cctcgatcgt 420
caaccagttg ttcaaggggg agcggaaaggc caagacattc ggcacatgcgc gcgtccctcg 480
cccggccagg ttccggcata tcgagccgc gcgtggggac gtcgtcggtc tcgacgggt 540
gaagatcgac gggaaacatcg ggcgtatgt acgcacgtcg ctgcgcgtcg gagcgtcggg 600
gatcatcctg gtggacatgt acatcaccag catcgccgc cggcgtctcc aaagggccag 660
ccgaggttac gtcttctccc ttccggcgt tctctccgt cgcgaggagg ccatgcctt 720
cattcgggac agcggatatgc agctgtatgac gctcaaggcg gatggcgaca ttccgtgaa 780
ggaactcggg gacaatccgg atcggctggc cttgtgttc ggcagcgaaa aggggtggcc 840
ttccgacctg ttccgggagg cgtctccgc ctgggtttcc atcccatga tgagccagac 900
cgagtctctc aacgtttccg ttccctcgg aatcgccgtc cacgagagga tcgacaggaa 960
tctcgccggc aaccgataag cgcctctgtt cctcgacgc tcggttccctc gacctcgatt 1020
cgtcagtgtatgtac gatcacatca cacggcagcg atcaccactg acatatcgag gtcaacggc 1080
gtggccggg cggcactcc tcgaggcgcc ggccgacgcc cttgaacgac tcgatgactc 1140
tagagtaacg ggctactccg tttaacggac cccgttctca cgcttttaggc ttgacccgg 1200
agcctgcattt gggcattccg ccgtgaaccc ggtggatgc cccggcacc cggccttcc 1260
agcaaagatc acctggcgcc gatgagtaag gcgtacagaa ccactccaca ggaggaccgt 1320
cgagatgaaa tctaacaatg cgctcatgt catcctcgcc accgtcaccc tggatgtgt 1380
aggcatagcc ttggttatgc cggtactgcc gggcctcttgc cggatatcg tccattccga 1440
cagcatcgcc agtcaatgt gcgtgtgtc agcgctatgc gcgttgcgtc aatttctatg 1500
cgccacccgtt ctggagcac tggccgaccg ctttggccgc cggccagtc tgctcgcttc 1560
gctacttggaa gccactatcg actacgcgtatcatggcacc acacccgtcc tgtggattct 1620
ctacgcccggaa cgcatcgatgg ccggcatcac cggccacaca ggtgcgggttgc ctggcccta 1680
tatcgccgac atcaccgtatgt gggaaagatcg ggctcgccac ttccggcgtca tgagcgcttgc 1740
tttcggcgtt ggtatgggtgg caggccccgt ggccggggga cgttggcgcc ccatccctt 1800
gcatgcacca ttcccttgcgg cggccgtgtc caacggcctc aacctactac tgggtgtctt 1860
cctaattgcac gatgcgtata agggagagcg tcgtccgtatgc cctttagagag ccttcaaccc 1920
agtcaatgcaccc ttccgggtggg cgcggggcat gactatcgac gcccaccta tgactgtctt 1980

ctttatcatg caactcgtag gacaggtgcc ggcagcgctc tgggtcattt tcggcgagga 2040
ccgcttcgc tggagcgca ccatgatcg cctgtcgctt gcggtaattcg gaatcttgca 2100
cgccctcgct caagccctcg tcactggtcc cgccaccaaa cgtttcgccg agaagcaggc 2160
cattatcgcc ggcacggcgg ccgacgcgt gggctacgtc ttgttggcgt tcgcgacgcg 2220
aggctggatg gccttccccca ttatgattct tctcgcttcc ggccggcatcg ggatgcccgc 2280
gttgcaggcc atgcgttcca ggcaggtaga tgacgaccat cagggacagc ttcaaggatc 2340
gctcgccgct ctaccagcc taacttcgtat cattggaccg ctgtatcgta cggcgattta 2400
tgccgcctcg gcgagcacat ggaacgggtt ggcacatggatt gttaggcgcg ccctataacct 2460
tgtctgcctc cccgcgttgc gtcgcggtgc atggagccgg gccacctcga cctgaatgga 2520
agccggcggc acctcgctaa cggattcacc actccaagaa ttggagccaa tcaattcttg 2580
cggagaactg tgaatgcgca aaccaaccct tggcagaaca tatccatcgc gtccgcccac 2640
tccagcagcc gcacgcggcg catctcggtc agcgttgggt cctggccacg ggtgcgcac 2700
atcgtgctcc tgtcggttgcg gactagaatt gatctcctcg accgccaatt gggcatctga 2760
gaatcatctg cggttctcgac acgcaacgtt ctgtcaacgt tgcaactcct agtgttgtga 2820
atcacacccc accgggggtt gggattgcag tcaccgattt ggtgggtgcg cccaggaaga 2880
tcacgtttac ataggagctt gcaatgagct actccgtggg acaggtggcc ggcttcgcgc 2940
gagtgacggt ggcacgcgtg caccactacg acgacatcg cctgctcgta ccgagcgagc 3000
gcagccacgc gggccaccgg cgctacagcg acgcccaccc cgaccggctg cagcagatcc 3060
tgttctaccc ggagctggc ttcccgctcg acgaggtcgc cgccctgctc gacgacccgg 3120
ccgcggaccc ggcgcgcac ctgcggccgc acgacgagct gctgtccgcg cggatcggga 3180
aactgcagaa gatggcggcg gccgtggagc aggcgatgga ggcacgcagc atggaatca 3240
acccacccccc ggaggagaag ttcgaggtct tcggcgactt cgaccccgac cagtacgagg 3300
aggaggtccg ggaacgcgtt gggAACACCG acgcctaccc ccagtccaaag gagaagacccg 3360
cctcgtaacac caaggaggac tggcagcgca tccaggacga ggccgacgag ctacccggc 3420
gcttcgtcgc cctgtatggac gcgggtgagc cccggactc cgagggggcg atggacgcgc 3480
ccgaggacca ccggcaggcc atcgccgcac accactacga ctgcgggtac gagatgcaca 3540
cctgcctgg cgagatgtac gtgtccgacg aacgtttcac gcgaaacatc gacgcccaca 3600
agccggcct cggccctac atgcgcgacg cgatcctcgca acacgcgtc cggcacacccc 3660
cctgagcggt ggtcggtggcc cgggtctccc gcccggctc accccacggc tcactccgg 3720
gccacgacca ccggcggtccc gtacgcgcac acctcggtgc ccacgtccgc cgcctccgtc 3780

acgtcgaaac ggaagatccc cgggtaccga gctcgtcagg tggcactttt cggggaaatg 3840
tgcgcggaac ccctatttgt ttattttct aaatacattc aaatatgtat ccgctcatga 3900
gacaataacc ctgataaaatg cttcaataat attgaaaaag gaagagtgatg agtattcaac 3960
atttccgtgt cgcccttatt cccttttg cggcatttg ctttcgtt tttgctcacc 4020
cagaaacgct ggtgaaagta aaagatgctg aagatcagtt gggtgcacga gtgggttaca 4080
tcgaactgga tctcaacagc ggtaagatcc ttgagagtt tcgccccgaa gaacgtttc 4140
caatgatgag cactttaaa gttctgctat gtggcggtt attatccgtt atigacgccc 4200
ggcaagagca actcggtcgc cgcatacact attctcagaa tgacttggtt gagtactcac 4260
cagtcacaga aaagcatctt acggatggca tgacagtaag agaattatgc agtgctgcca 4320
taaccatgag tgataacact gcggccaact tacttctgac aacgatcgga ggaccgaagg 4380
agctaaccgc tttttgcac aacatggggg atcatgtaac tcgccttgat cgttggaac 4440
cgtagctgaa tgaagccata ccaaacgacg agcgtgacac cacatgcctt gtagcaatgg 4500
caacaacgtt ggcacaaacta ttaactggcg aactacttac tctagcttcc cggcaacaat 4560
taatagactg gatggaggcg gataaagttt caggaccact tctgcgctcg gccctccgg 4620
ctggctgggtt tattgctgat aaatctggag ccggtgagcg tgggtctcgc ggtatcattt 4680
cagcactggg gccagatggtt aagccctccc gtatcgtagt tatctacacg acggggagtc 4740
aggcaactat ggatgaacga aatagacaga tcgctgagat aggtgcctca ctgattaagc 4800
attggtaact gtcagaccaa gtttactcat atatactttt gattgatttta aaacttcatt 4860
ttaattttaa aaggatctag gtgaagatcc ttttgataa tctcatgacc aaaatccctt 4920
aacgtgagtt ttcgttccac tgagcgtcag accccgtaga aaagatcaaa ggatcttctt 4980
gagatcctt tttctgcgc gtaatctgct gcttgcaaac aaaaaaaccg ccgctaccag 5040
cggtggtttgc tttgccggat caagagctac caactctttt tccgaaggta actggcttca 5100
gcagagcgcgca gataccaaat actgttcttc tagttagcc gtagtttaggc caccacttca 5160
agaactctgtt agcaccgcct acatacctcg ctctgctaattt cctgttacca gtggctgctg 5220
ccagtgccgta taagtctgtt cttaaccgggt tggactcaag acgatagttt ccggataagg 5280
cgccagcggcgc gggctgaacg ggggggttcgt gcacacagcc cagcttggag cgaacgacct 5340
acaccgaactt gagataccta cagcgtgagc tatgagaaag cggccacgtttt cccgaaggaa 5400
gaaaggcggca caggatccg gtaagcggca gggtcggaaac aggagagcgc acgagggagc 5460
ttccaggggg aaacgcctgg tatcttata gtcctgtcgg gtttcggccac ctctgacttg 5520
agcgtcgatttttgc tcttcagggg ggcggagcctt atggaaaaac gccagcaacg 5580

cgccctttt acggttcccg gcctttgct ggcctttgc tcacatgttc tttcctgcgt 5640
tatccccctga ttctgtggat aaccgtatta ccgccttga gtgagctgat accgctcgcc 5700
gcagccgaac gaccgagcgc agcgagtcag tgagcgagga agcggaaagag cgcccaatac 5760
gcaaaccgccc tctccccgcg cggtggccga ttcatatgc cagctggcac gactagagtc 5820
ccgctgaggc ggcgttagcag gtcagccgccc ccagcgggtgg tcaccaaccg gggtggaaacg 5880
gcgcggat cgggtgtgtc cgtggcgctc attccaaacct ccgtgtgttt gtgcagggtt 5940
cgcgttgtc agtccctcgc accggcaccc gcagcgaggg gctcacgggt gccgggtgggt 6000
cgactagttc agtgtatggtg atggtgatgc tcgagagatc taagcttggta tccgcggccg 6060
ctacgttagaa ttcccatggc gtgatggta tggatggc ccatatgtat atctccttct 6120
taaagttaaa caaaattatt tctagacgcc gtccacgcctg ctcctcacg tgacgtgagg 6180
tgcaagcccg gacgttccgc gtgccacgcc gtgagccgcc gcgtgccgtc ggctccctca 6240
gcccgccgg ccgtgggagc ccgcctcgat atgtacaagc atggggactc gccgcccact 6300
agcggcttcc cgacacgccg tactgaccag cagatcagcg ataaacgctg tttctgctgg 6360
ttaagtggat aaaaaccaaa taatcgatga acctcgaagt ggagtatccg agctgaacta 6420
gctggattta ctccgaaaat acgagcggcg acgaagggtg ttggaccacc ctgcccgcgc 6480
cttcgaggct cctacttgac taggaccccg ctgcgttatga ccagcgttaag tgctgaacac 6540
cttccggca aagaccggcc ccctgtccctc gtgtcgcccg ataagcgcgg catccggcac 6600
gaacttcgac ccaaacttca acaaattcacc acgtcagaaaa cttaatgc gtgcggccgg 6660
ccgatttccg gcgtgaacgg tgtgaccatc gtcaacggtc ccaaagggtt cggatttggta 6720
ggcccttcgct cctgcggaaa gggctggatc tgccctgct gtgcgggaaa agtcggcga 6780
catcgagcag acgaaatttc tcaagttgtt gctcatcaac tcggactgg atctgttgcg 6840
atggtgacca tgaccatgcg ccataccgct gggcagcgtt tgcatgattt gtggactgga 6900
cttcggcag cctggaaagc tgcgaccaat ggccgcccgt ggcgtaccga acgtgaaatg 6960
tacggctgcg acggatacgt acgagctgtt gaaatcactc acggaaaaaaa cggttggcac 7020
gttcacgtcc acgcgtact catgttcagc ggtgacgtga gtgagaacat cctcgaatcc 7080
ttctcggtat cgtatgttcga tcggtgacc tccaaactcg tgtctctggg atttgctgctg 7140
ccactacgta attcaggtgg actcgacgta agaaagattg gtggagaagc tgaccaagtt 7200
ctcgctgcat acctgacgaa aattgcattcc ggggtcgccca tggaagtcgg cagtggcgc 7260
ggaaaaagtg gtcggcacgg caaccgtgca cttggaaa tcgcccgttga tgcatcgga 7320
ggagatccac aagcgttgga actctggcgc gagtttgagt tcggttcgat gggacgccga 7380

gcaatcgcat ggtctcggtgg actgcgcgcc cgagctggc ttggcgtaga actcacggat 7440
gctcagattg tcgaacagga agaatctgcc ccggcatgg ttgcgatcat tccggctcgg 7500
tcctggatga tgattcgaa ctgtgcgcct tacgtttcg gagagatcct tggactcg 7560
gaagcggcgc cgacctggaa aaaccttcgt gaccacttgc attatcgatt gcctgcagcg 7620
gatgtgcggc ctccgataat atcgattcgt aagtgaaatg tcttggtgtg caacaacttt 7680
cactcgatg aaccacactt gagggcatcc ccccgatact tgccgcctt aagctgggtg 7740
tctctctgtc agggctgcga tagcaccgcg tagcggcttg gccttgacag agagacggcc 7800
tgtttcatgg ttggtctcg ggggctgacc gggcagatag aaaaaggccg gccgatttgg 7860
ctgcccacta ttttgcagg taaaccatc tcatgagcat caatgaacgt cccgttgta 7920
tcgcagcga tgca gttcgt gtagacgtcg atggcggtgt gatgggtgtg tatctctcgc 7980
tttatggca agaaatcactg ctagatcgat atgatgcgtt cctactcctc gatcgacttc 8040
aggacgcgtt gcgacctcaa gccaaactaag aaccctccag atggtctaaa cgaggcgcaa 8100
actcgctcctt gggcctgcgg gcggagcacc gaagcgcgag cgaagcggag cgcgttaggtg 8160
ggggagcctg cggcagcgg cggcggagcc gccgccttgg taataggtga tcatcgggc 8220
catagcaggc cagaggatgt tttacgatg actcatgctc accacgcca gtactgatg 8279

<210> 95

<211> 8384

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:vector pTip-QC1

<400> 95

gagctcgacc gcgcgggtcc cggacgggaa agagcgggaa gctttgccag agagcgcacga 60
cttccccctt cgttgggtat tgccggtcag ggcagccatc cgccatcg 120
tcacacccca ggaatcgct cactgaacac agcagccgtt aggacgacca tgactgatgtt 180
ggacaccatc gcaaattccgtt ccgatcccgc ggtgcagcgg atcatcgatg tcaccaagcc 240
gtcacgatcc aacataaaga caacgttgat cgaggacgtc gagccccctca tgcacacgcat 300

cgccggccggg gttggagttca tcgaggctca cggcagcgac agcagtcctt ttccatctga 360
gttgctggat ctgtgcgggc ggcagaacat accggtccgc ctcatcgact cctcgatcgt 420
caaccagttg ttcaaggggg agcggaaggc caagacattc ggcacatgccg cgtccctcg 480
cccgccagg ttccggcata tcgagccg gcgtggggac gtcgtcggtc tcgacgggt 540
gaagatcgic gggaaacatcg gcgatcgatgt acgcacgtcg ctgcgcgtcg gagcgtcggg 600
gatcatccgt gtggacagtg acatcaccag catcgccgac cggcgctcc aaaggccag 660
ccgagggtac gtcttcctcc ttcccgatgt tctctccgt cgcgaggagg ccatgcctt 720
catcgccggc acggtatgc agctgatgac gctcaaggcg gatggcgaca ttccgtgaa 780
ggaactcggg gacaatccgg atcggctggc ttgcgtgtc ggcagcgaaa agggtggcc 840
ttccgacctg ttccgaggagg cgtctccgc ctgggtttcc atccccatga tgagccagac 900
cgagtctctc aacgtttccg ttccctcgg aatcgcgctg cacgagagga tcgacaggaa 960
tctcgccggc aaccgataag cgcctctgtt cctcgacgc tcggttccctc gacctcgatt 1020
cgtcagtgtatgatcaccatca cacggcagcg atcaccactg acatatcgag gtcaacggc 1080
gtggccggg cggcactcc tcgaaggcgc ggccgacgcc ctgaacgac tcgatgactc 1140
tagacgcac cggaaacctcc accccactca cctagtcga catccgtacc ttggaaaccg 1200
acctgtatttgcatttca tggacatcga ccagtggcgt tgcttagttc aagaccatgt 1260
ccagccccgaa ggcgtccaga ctctagccac cggaggttgt ccggggccatccgtcg 1320
cgccccgaaacg tcacgtctt gtgtggcctt cccttgttgc ttgcgtatcgt gggcacacct 1380
ctaccgtctg aatttcgagt ctggccctcg ctgcgcacat ctgcactgt gacgctgtca 1440
ggtcacccgc ttccggctta ccagttccctt tcatcgaaatc gagcttcgg tgccggcgcg 1500
cagccctccctt gaccatcctc agatttatg gagtctcgca gtgccttcg ctatctacgt 1560
cctcgccgtt gctgtcttcg cccagggcac atccgagttc atgttgtccg gactcataacc 1620
ggacatggcc cgtgacccctcg gggtttcggg ccccgccgccc ggactcctca cctccgcctt 1680
cgcggccggg atgatcatcg ggcgtccgtt gatggctatc ggcacatgc ggtggccccc 1740
gcgcacgcgc cttctgacat tcctcatcac gttcatgctg gtccacgtca tcggcgcgc 1800
caccagcagc ttccgggtct tgctggtcac acgcatcgatggccctcg ccaatggccgg 1860
attcttggca gtggccctgg gggcggcgat ggcgtatggc cccggccgaca tgaaagggcg 1920
cgccacgtcc gtccctccgt gcggtgtcac gatcgcatgt gtagccgggtt ttcccgccgg 1980
cgcccttcgtt ggtgaaatgt gggcggcgat ggcgtatggc tggcgtatcg tcgtcatctc 2040
cgccctgca gtggccggcgtt atgttcgc caccggccggc gagccgttg cagagtccac 2100

accgaatgcc aagcgtgaac tgcctcaact gcgtcacgc aagctccagc tcatgttgt 2160
cctcgccccg ctgatcaacg gcgcaacgtt ctgttcgttc acgtacatgg cgcccacgct 2220
caccgacatc tccgggttcg actccgttg gattccgttg ctgctggggc tggcggct 2280
cggtatcggttc atcgggtgtca gcgtcggagg caggctcgcc gacacccggc cggttccaact 2340
gctcgctgtc gggtccgcag cactgttgac gggatggatc gtcttcgttc tcacggcatc 2400
ccaccccgcg gtgacattgg tggatgtgtt cgtgcagggc gctttgtcct tcgcggtcgg 2460
ctcgacttgc atctccagg tgcgttacgc cgccgacgcg gcaccgaccc tgggtggatc 2520
gttcgcgacg gccgcgttca acgtcggtgc tgcactggga ccggcgctcg gcgggttggc 2580
gatcggcatg ggtctgagct accgcgcggc gctctggacg agcgcgcgc tggtgacact 2640
cgcgatcgatc atcggcgcag ccacccgttc tctgtggcgg cgaccagcgt ctgtccacga 2700
atctgtcccc gcctgaccag aaaccaggat ctgtgagttt ggtgactgtat ctgtgcacgc 2760
tcagcagtca ccgcgcgcgc gcgtcgtacc gagggccagc gccaaacaggt gtgtggagct 2820
ctgccccgtc ctcttcacg cgaactcaact gttcagtgcg gcgatacgtt ctcggtgagt 2880
tccactacag cgaccatgac tagaatttgc tccctcgacc gccaaattggg catctgagaa 2940
tcatctgcgt ttctcgacg caacgtactt gcaacgttgc aactcctagt gttgtgaatc 3000
acacccacc ggggggtggg attgcagtc ccgattttgtt gggtgccccc aggaagatca 3060
cgtttacata ggagcttgcg atgagctact ccgtgggaca ggtggccggc ttgcggcggag 3120
tgacggtgcg cacgcgtgcac cactacgacg acatcgccct gctcgttaccg agcgagcgca 3180
gccacgcggg ccacccggcgc tacagcgcacg ccgacccgtca ccggctgcag cagatccgt 3240
tctaccggga gctgggcttc ccgctcgacg aggtcgccgc cctgctcgac gaccggccg 3300
cggacccgcg cgccgcacctg cgccgcgcgc acgagctgtt gtccgcccgg atcggaaac 3360
tgcagaagat ggcggcggcc gtggagcagg cgtggaggc acgcagcatg ggaatcaacc 3420
tcacccggga ggagaagtttgc gaggtcttgc ggcacttcga ccccgaccag tacgaggagg 3480
agggtccggga acgctggggg aacaccgacg cctaccgcac gtccaaaggag aagaccgcct 3540
cgtacaccaa ggaggactgg cagcgcacccagg aggacgaggc cgacgagctc acccgccgt 3600
tcgtcgccct gatggacgcg ggtgagcccg ccgactccga gggggcgatg gacgcccgg 3660
aggaccacccg gcagggcatc gcccgcaccc actacgactg cgggtacgag atgcacaccc 3720
gcctggcga gatgtacgt tccgacgaaac gtttacgcg aaacatcgac gccgccaagc 3780
cgggccctcgcc cgcctacatg cgcgcacgcga tcctcgccaa cgccgtccgg cacacccct 3840
gagcgggttgtt cgtggccggc gtctcccgcc cgggttcacc ccacggctca ctccgggcc 3900

acgaccaccc cggtcccgta cgcgacacc tcggtgccca cgtccgcccgc ctccgtcact 3960
tcgaaacgga agatccccgg gtaccgagct cgtcaggtgg cactttcgg ggaaatgtgc 4020
gcggAACCCC tatttgttta ttttctaaa tacattcaaa tatgtatccg ctcatgagac 4080
aataaccctg ataaatgctt caataatatt gaaaaaggaa gagtatgagt attcaacatt 4140
tccgigtgc ccttattccc tttttgcgg cattttgcct tcctgtttt gctcacccag 4200
aaacgctggt gaaagtaaaa gatgctgaag atcagttggg tgcacgagtg ggtaacatcg 4260
aactggatct caacagcggt aagatccctg agagtttcg cccgaagaa cgtttccaa 4320
tgcgtgacac ttttaaagtt ctgctatgtg gcgcggattt atccgtatt gacgcgggc 4380
aagagcaact cggtcgcccgc atacactatt ctcagaatga cttgggttag tactcaccag 4440
tcacagaaaa gcatcttacg gatggcatga cagtaagaga attatgcagt gctgccataa 4500
ccatgagtga taacactgctg gccaacttac ttctgacaac gatcgaggaa ccgaaggagc 4560
taaccgctt tttgcacaac atggggatc atgtaactcg ccttgatcgt tggaaaccgg 4620
agctgaatga agccatacca aacgacgagc gtgacaccac gatgcctgta gcaatggcaa 4680
caacgttgcg caaactatta actggcgaac tacttactct agcttccgg caacaattaa 4740
tagactggat ggaggcggat aaagttgcag gaccacttct gcgcctggcc ctccggctg 4800
gctggtttat tgctgataaa tctggagccg gtgagcgtgg gtctcgccgt atcatgcag 4860
cactggggcc agatggtaag ccctcccgta tcgtagttat ctacacgacg gggagtcagg 4920
caactatgga tgaacgaaat agacagatcg ctgagatagg tgcctcactg attaagcatt 4980
ggtaactgtc agaccaagtt tactcatata tacttttagat tgatttaaaa ctccatttt 5040
aatttaaaag gatcttaggtg aagatccctt ttgataatct catgaccaaa atcccttaac 5100
gtgagtttc gttccactga gcgtcagacc ccgtagaaaa gatcaaagga tcttcttgag 5160
atccctttt tctgcgcgta atctgctgct tgcaaacaaa aaaaccaccg ctaccagcgg 5220
tggttgtt gccggatcaa gagctaccaa ctcttttcc gaaggtaact ggcttcagca 5280
gagcgcagat accaaatact gttcttctag tgcgtgttttcc gttaggccac cactcaaga 5340
actctgttagc accgcctaca tacctcgctc tgctaattct gttaccagtg gctgctgcca 5400
gtggcgataa gtcgtgtctt accgggttgg actcaagacg atagttaccg gataaggcgc 5460
acgggtcggg ctgaacgggg gttcgtgca cacagcccg ctggagcga acgacctaca 5520
ccgaactgag atacctacag cgtgagctat gagaagcgc cacgcttccc gaagggagaa 5580
aggcggacag gtatccggta agcggcaggg tcggaacagg agagcgcacg agggagcttc 5640
cagggggaaa cgcctggat ctttatagtc ctgtcggtt tcgcccaccc tcgacttgagc 5700

gtcgatTTT gtatgcTcg tcagggggc ggagcctatg gaaaaacgcc agcaacgcgg 5760
cTTTTTACG gttccTggcc tttTgcTggc cTTTgcTca catgttctt cctgcgttat 5820
cccCTgATTC tgtggataac cgtattaccg cTTTgagtg agctgatacc gctcgccgca 5880
gccgaacgac cgagcgcagc gagTCAGTGA gcgaggaAGC ggaagagcgc ccaatacgca 5940
aaccgcctt ccccgcgt tggccgattc attaatgcag ctggcacgac tagagtcccg 6000
ctgaggcggc gtagcaggTC agccgcTTCA gcggTggTCa ccaaccggg tggAACggcG 6060
ccggTatcgG gtgtgtccgt ggCgCTCATT ccaacCTcg tGTGTTGtG caggtttcgc 6120
gtgttgcaGT ccCTCGcacc ggcacCCGca gcgaggGGct cacgggtGCC ggtgggtcga 6180
ctagttcaGT gatggtgatg gtatgcTcg agagatctaa gcttggatcc gCggCCGcTa 6240
cgtagaattc ccataTggTg atggtgatgg tggccatgg tataatctcct tcttaaagtt 6300
aaacaaaatt atttctagac gCcgtccacg ctgcCTCCTC acgtgacgtg aggtgcaAGC 6360
ccggacgttc cgcgtgccac gCcgtgagcc gCcgcgtGCC gtcggctccc tcagcccggg 6420
cggccgtggg agccgcctc gatatgtaca cccgagaAGC tccCAGCgtc ctcctggcc 6480
gcgataCTcg accaccacgc acgcacacccg cactaacgtat tcggccggc gtcgattcgg 6540
ccggcgctcg attcggccgg cgctcgattc ggCCGGCgt cGATTcggcc ggcgcTcgat 6600
tcggccgagc agaagagtga acaaccacccg accacgCTTC cgctCTgcGc gCcgtacccg 6660
acctacCTCC cgcagCTcgA agcagCTccc gggagTaccg ccgtactcac ccgcCTgtc 6720
tcaccatcca ccgacgcaaa gCCCAACCCG agcacacCTC ttgcaccaag gtgccgaccg 6780
tggctttccg ctcgcagggt tccagaagaa atcgaacgtat ccagcgcggc aaggTTcaaa 6840
aagcaggggt tggTggggag gaggtttgg ggggtgtcgc cggatacct gatatggctt 6900
tgtttTgcgt agtcaataa tttccatAT agcCTcgGc cgtcgactc gaatagtta 6960
tgtggcggg cacagtTgcC ccatgaaATC cgcaacgggg ggcgtgtGA gCgatcgGca 7020
atgggcggat gcggTgttgc ttccgcaccg gCcgttgcgc acgaacaacc tccaacgagg 7080
tcagtaccgg atgagccgcg acgacgcatt ggcaatgcgg tacgtcgagc attcaccgca 7140
cgcgttgctc ggatCTATcg tcatcgactg cgatcacgtt gacGCCGcga tgcgcgcatt 7200
cgagcaacca tccgaccatc cggcgccgaa ctgggtcgca caatcgccgt ccggccgcgc 7260
acacatcgga tggTggctcg gccccaaacca cgtgtgcgc accgacagcg cccgactgac 7320
gccactgcgc tacgcccacc gcatcgaaac cggcctcaag atcagcgtcg gcggcgattt 7380
cgcgtatggc gggcaactga ccaaaaaccc gattcacccc gattgggaga cgatctacgg 7440
cccgccacc cctacacat tgcggcagct ggccaccatc cacacacccc ggcagatgcc 7500

gcgtcgccccc gatcggggcg tgggcctggg ccgcaacgtc accatgttcg acgccacccg 7560
gcgatgggca taccgcagt ggtggcaaca ccgaaacgga accggccgac actgggacca 7620
tctcgccctg cagcaactgcc acgcccgtcaa caccgagttc acgacaccac tgccgttac 7680
cgaagtacgc gccaccgcgc aatccatctc caaatggatc tggcgcaatt tcaccgaaga 7740
acagtaccga gcccgacaag cgcatctcgg tcaaaaaggc ggcaaggcaa cgacactcgc 7800
caaacaagaa gccgtccgaa acaatgcaag aaagtacgac gaacatacga tgcgagaggc 7860
gattatctga tggcgaggc caaaaatccg gtgcgcgaa agatgacggc agcagcagca 7920
gccgaaaaat tcggtgccctc cactgcaca atccaacgct tggcgatgc gccgcgtgac 7980
gattacctcg gccgtcgaa agctcgccgt gacaaagctg tcgagctgcg gaagcagggg 8040
ttgaagtacc gggaaatcgc cgaagcgtatc gaaactctcga ccgggatcgt cggccgatta 8100
ctgcacgacg cccgcaggca cggcgagatt tcagcgagg atctgtcgac gtaaccaagt 8160
cagcgggttg tcgggttccg gccggcgctc ggcactcgga ccggccggcg gatgggttgc 8220
tgcccttggc gcagcgtcag ctaccgcga aggccgttca tcgaccggct tcgactgaag 8280
tatgagcaac gtcacagcct gtgattggat gatccgctca cgctcgaccg ctaccgttgc 8340
agctgcccggcc cgctggcat gagcaacggc caactctcgt tcaa 8384

<210> 96

<211> 8388

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:vector pTip-QC2

<400> 96

gagctcgacc ggcgggtcc cggacgggaa agagcgggaa gcttgcac 60
cttcccccttgcgttggat tggcggtcag ggcagccatc cgccatcgac gcgttagggtg 120
tcacacccca ggaatcggtt cactgaacac agcagccgtt aggacgacca tgactgagtt 180
ggacaccatc gcaaattccgtt ccgatcccgc ggtgcagcgg atcatcgatc tcaccaagcc 240
gtcacgatcc aacataaaga caacgttgcgtt cgaggacgtc gagccctca tgcacagcat 300

cgccggccggg gtggaggtca tcgagggtcta cggcagcgac agcagtcctt ttccatctga 360
gttgctggat ctgtgcgggc ggcagaacat accggtccgc ctcatcgact cctcgatcgt 420
caaccagttg ttcaaggggg agcggaaaggc caagacattc ggcatgcgcc gcgtccctcg 480
cccggccagg ttccggcgata tcgagcccg gcgtggggac gtcgtcggtc tcgacgggt 540
gaagatcgtc gggAACATCG ggcgtatgt acgcacgtcg ctgcgcgtcg gagcgtcggt 600
gatcatccgt gtggacagtg acatcaccag catcgccgac cggcgctcc aaaggccag 660
ccgagggtac gtcttctccc ttcccggtcgt tcttcccggt cgcgaggagg ccatgcctt 720
cattcggac agcggatgc agctgatgac gctcaaggcg gatggcgaca ttccgtgaa 780
ggaactcggg gacaatccgg atcggctggc ctigctgtc ggcagcgaaa agggtggcc 840
ttccgacctg ttccgaggagg cgtctccgc ctgggtttcc atccccatga tgagccagac 900
cgagtctctc aacgtttccg ttccctcgg aatcgccgtc cacgagagga tcgacaggaa 960
tctcgccggc aaccgataag cgcctctgtt cctcgacgc tcggttccctc gacctcgatt 1020
cgtcagtgtatgatcaccatca cacggcagcg atcaccactg acatatcgag gtcaacggc 1080
gtggtccggg cggcactcc tcgaaggcgc ggccgacgcc cttgaacgac tcgatgactc 1140
tagacgcac cggaaacctcc accccactca cctagtcga catccgtacc ttggaaaccg 1200
acctgtatttgcatttcaatgttggacatcga ccagtggcgt tgcttaggttca aagaccatgt 1260
ccagccccgaa ggcgtccaga ctctagccac cggaggttgt ccgggtggcca catccgtcg 1320
cgccccgaaacg tcacgctctt gtgtggcctt cccttgttgt ttgcgtacatc tggcacaccc 1380
ctaccgtctg aatttcgagt ctggccctcg ctgcgcacat ctcgcactgt gacgcgtca 1440
ggtcacccgc ttccggcta ccagttccctt tcacatcgaatc gagcttcgg tgccggcgc 1500
cagccctccctt gaccatccctc agatttatg gagtctcgca gtgccttcgt ctatctacgt 1560
ccctcggcctt gctgtcttcg cccagggcac atccgagttc atgttgtccg gactcataacc 1620
ggacatggcc cgtgacctcg gggtttcgtt cccggccgc ggactcctca cctccgcctt 1680
cgccggtcggg atgatcatcg ggcgtccgtt gatggctatc ggcacatgc ggtggccccc 1740
gcgcacgcgc cttctgacat tcctcatcac gttcatgcgt gtcacgtca tcggcgcgc 1800
caccagcagc ttccgggtct tgctggtcac acgcacatcg gggccctcg ccaatgccgg 1860
attcttggca gtggccctgg gggcggcgat ggcgtatggt cccggccaca tgaaagggcg 1920
cgccacgtcc gtcctccctcg gccgggtcac gatgcacatgt gtagccgtg ttccgggggg 1980
cgcccttcgt ggtgaaatgt gggcggcgat gtcacgttc tggctgtcg tcgtcatctc 2040
cgccccatcga gtggtggcga ttatgttcgc cacccggcc gagccgttg cagagtccac 2100

accgaatgcc aagcgtaaac tgcctcaact gcgcacgc aagctccagc tcatgttgt 2160
cctcgccccgcttgatcaacg gcgcacgtt ctgttcgttc acgtacatgg cgcccacgct 2220
caccgacatc tccgggttgc actccgttg gattccgttg ctgtggggc tggcggct 2280
cgatcggttc atcggtgtca gcgtcggagg caggctcgcc gacacccggc cggtccaact 2340
gctcgctgtc gggccgcag cactgttgac gggatggatc gtctcgctc tcacggcatc 2400
ccaccccgcg gtgacattgg tggatgtttt cgtgcaggcc gctttgtcct tcgcggcgg 2460
ctcgactttg atctccagg tgctctacgc cgccgacgcg gcaccgaccc tgggtggatc 2520
gttcgcgacg gcccgcgttca acgtcgggtc tgcactggga ccggcgctcg ggggttggc 2580
gatcgccatg ggtctgagct accgcgcggc gctctggacg agcgcgcgc tggtgacact 2640
cgcgatcggtc atcgccgcag ccacccgtc tctgtggcgg cgaccagcgt ctgtccacga 2700
atctgtcccc gcctgaccatgg aaaccaggat ctgtgagttt ggtgactgtat ctgtgcacgc 2760
tcagcgtca ccgcgcgcgc gcgtcgtaacc gaggccagc gccaacaggt gtgtggagct 2820
ctgccccgtc ctcttcacg cgaactcaact gttcagtgcg gcgatacgtc ctgggtgagt 2880
tccactacag cgaccatgac tagaatttgc ctccctcgacc gccaatttggg catctgagaa 2940
tcatctgcgt ttctcgacg caacgtactt gcaacgttgc aactcctagt gttgtgaatc 3000
acacccacc ggggggtggg attgcgtca ccgatttggt gggtgccccc aggaagatca 3060
cgtttacata ggagcttgcg atgagctact ccgtggacg ggtggccggc ttgcggag 3120
tgacggtgcg cacgctgcac cactacgacg acatcgccct gctcgtaacc agcgagcgc 3180
gccacgcggg ccaccggcgc tacagcgtacg ccgacccgtc ccggctgcag cagatccgt 3240
tctaccggg gctggccgttcc cgcgtcgacg aggtcgccgc cctgctcgac gaccggccg 3300
cgacccgcg cgcgcacccgt cggccgcgc acgagctgct gtcggccgg atcgaaac 3360
tgcagaagat ggcggcggcc gtggagcagg cgtggagggc acgcagcatg ggaatcaacc 3420
tcacccggg ggagaagtttcc gaggcttgc ggcacttgcg cccgaccag tacgaggagg 3480
aggccggg acgcgtgggg aacaccgacg cctaccgcg gtcggccgg aagaccgcct 3540
cgtaacacaa ggaggactgg cagcgcattcc aggacgaggc cgacgagctc acccgccgt 3600
tcgtcgccct gatggacgcg ggtgagcccg ccgactccga gggggcgatg gacgcccgg 3660
aggaccacccg gcagggcatc gcccgcacc actacgactg cgggtacgag atgcacaccc 3720
gcctggccgat gatgtacgt tccgacgaaac gtttacgcg aaacatcgac gcccgcacc 3780
cgccgcctcgcc cgcctacatg cgcgtcgacg tccctcgccaa cgccgtccgg cacacccct 3840
gagcggtggt cgtggccgg gtcctccgcg cgggttcacc ccacggctca ctccggcc 3900

acgaccaccg ccgtcccgta cgcgacacc tcggtgccca cgtccgcccgc ctccgtcacg 3960
tcgaaacgga agatccccgg gtaccgagct cgtcagggtgg cactttcggtt ggaaatgtgc 4020
gcggAACCC tatttgttta tttttctaaa tacattcaaa tatgtatccg ctcatgagac 4080
aataaccctg ataaatgctt caataatatt gaaaaaggaa gagtatgagt attcaacatt 4140
tccgtgtcgc ccttattccc tttttgcgg cattttgcct tcctgtttt gctcacccag 4200
aaacgcttgtt gaaagtaaaa gatgctgaag atcagttggg tgcacgagtg gtttacatcg 4260
aactggatct caacagcggta aagatccttgcg agagtttcg cccgaagaa cttttccaa 4320
tgcgttgcac ttttaagtt ctgctatgtg ggcgggtatt atccgttattt gacgcccggc 4380
aagagcaact cggtcgcccgc atacactatt ctcagaatga ctgggtttagt tactcaccag 4440
tcacagaaaa gcatcttacg gatggcatga cagtaagaga attatgcagt gctgccataa 4500
ccatgagtga taacactgctt gccaacttac ttctgacaac gatcgaggaa ccgaaggagc 4560
taaccgctt tttgcacaac atggggatc atgtaactcg ctttgatcgt tggaaaccgg 4620
agctgaatga agccatacca aacgacgagc gtgacaccac gatgcctgtt gcaatggcaa 4680
caacgttgcg caaactatta actggcgaac tacttactct agcttcccggtt caacaattaa 4740
tagactggat ggaggcggat aaagttgcag gaccacttctt ggcgtcgccctt cttccggctg 4800
gctggtttat tgctgataaa tctggagccg gtgagcgtgg gtctcgccgtt atcattgcag 4860
cactggggcc agatggtaag ccctcccgta tcgtagttat ctacacgacg gggagtcagg 4920
caactatgga tgaacgaaat agacagatcg ctgagatagg tgcctcactg attaagcatt 4980
ggtaactgtc agaccaagtt tactcatata tacttttagat tgatttaaaa cttcattttt 5040
aatttaaaag gatcttagtg aagatcctt ttgataatctt catgaccaaa atcccttaac 5100
gtgagtttc gttccactga gcgtcagacc ccgtagaaaa gatcaaagga tcttctttagt 5160
atcctttttt tctgcgcgttta atctgcgtctt tgcaaaacaaa aaaaccaccg ctaccagcgg 5220
tggtttgggtt gccggatcaa gagctaccaa ctcttttcc gaaggttaact ggcttcagca 5280
gagcgcagat accaaatact gttcttctag tgcgttgcgtt gttaggccac cacttcaaga 5340
actctgttagc accgcctaca tacctcgctc tgctaatcctt gttaccagtg gctgctgcca 5400
gtggcgataa gtcgtgtctt accgggttgg actcaagacg atagttaccg gataaggcgc 5460
acgcggtcggg ctgaacgggg ggttcgttgcgtt cacagccacg ctggagcgtt acgacactaca 5520
ccgaactgag atacctacag cgtgagctat gagaaagcgc cacgccttccc gaagggagaa 5580
aggcggacag gtatccggta agcggcaggg tcggaaacagg agagcgcacg agggagctt 5640
cagggggaaaa cgcctggat ctttatagtc ctgtcgggtt tcggcacctc tgacttgagc 5700

gtcgatttt gtgatgctcg tcagggggc ggagcctatg gaaaaacgcc agcaacgcgg 5760
ccttttacg gttccctggcc ttttgcgtgc ctttgcgtca catgttctt cctgcgttat 5820
cccctgattc tgiggataac cgtattaccg ctttgagtg agctgataacc gctcgccgca 5880
gccgaacgac cgagcgcagc gagtcagtga gcgaggaagc ggaagagcgc ccaatacgca 5940
aaccgcctct ccccgccgt tggccgattc attaatgcag ctggcacgac tagagtcccg 6000
ctgaggcggc gtagcaggc agccgccccca gcggtggtca ccaaccgggg tggaacggcg 6060
ccggtatcgg gtgtgtccgt ggcgctcatt ccaacctccg tgttttgc caggtttcgc 6120
gtgtgcagt ccctcgacc ggcacccgca gcgaggggct cacgggtgcc ggtgggtcga 6180
ctagttcagt gatggtgatg gtgatgctcg agagatctaa gcttggatcc gcggccgcta 6240
cgtagaattc ccatggcgtg atggtgatgg tggatggccca tatgtatatac tccttcttaa 6300
agttaaacaa aattatttct agacgcccgtc cacgctgcct cctcacgtga cgtgaggtgc 6360
aagcccgac gttcccggtg ccacgcccgtg agccgcccgc tgccgtcggc tccctcagcc 6420
cgggcggccg tgggagcccg cctcgatatac tacacccgag aagctccag cgtccctcctg 6480
ggccgcgata ctcgaccacc acgcacgcac accgcactaa cgattcggcc ggcgctcgat 6540
tcggccggcg ctcgattcgg ccggcgctcg attcggccgg cgctcgattc ggccggcgct 6600
cgattcggcc gagcagaaga gtgaacaacc accgaccacg cttccgctct gcgcgcccgt 6660
cccgacctac ctcccgacgc tcgaagcagc tcccggaggt accgcccgtac tcacccgcct 6720
gtgctcacca tccaccgacg caaagcccaa cccgagcaca cctcttgac caaggtgccg 6780
accgtggctt tccgctcgca gggttccaga agaaatcgaa cgatccagcg cggcaagggtt 6840
caaaaagcag gggttgggg ggaggaggtt ttgggggggtg tcgcccggat acctgatatac 6900
gctttttt gcgtatgcga ataatttcc atatagccctc ggcgcgtcgg actcgaatag 6960
ttgatgtggg cgggcacagt tgcccatga aatccgcaac gggggcggtg ctgagcgatc 7020
ggcaatggc ggtatgcgggtg ttgcctccgc accggccgtt cgcgacgaac aacctccaac 7080
gaggtcagta cggatgagc cgcgacgacg cattggcaat gcggtagtc gaggattcac 7140
cgcacgcgtt gctcgatct atcgatcg actgcgtatca cgttgacgccc gcgtatgcgc 7200
cattcgagca accatccgac catccggcgc cgaactgggt cgcacaatcg ccgtccggcc 7260
gcgcacacat cggatgggg ctcggcccca accacgtgtc cgcacccgac agcgcggc 7320
tgacgccact gcgcgtacgc caccgcgtcg aaaccggctt caagatcagc gtcggccggcg 7380
atttcgcgtatc tggcggccaa ctgacaaaa acccgattca ccccgattgg gagacgatct 7440
acggcccgac caccgggtac acattgcggc agctggccac catccacaca ccccgccaga 7500

tgccgcgtcg gcccgtatcg gccgtgggcc tggccgca a cgtcaccatg ttgcacgcca 7560
ccggcgatg ggcatacccg cagtggggc aacaccgaaa cggaaaccggc cgcgactggg 7620
accatctcg t cctgcagcac tgccacgccc tcaacaccga gttcacgaca ccactgcccgt 7680
tcaccgaagt acgcgccacc ggcataatcca tctccaaatg gatctggcgc aatttcaccg 7740
aagaacagta ccgagcccga caagcgcac tcggtaaaaa aggccggcaag gcaacgacac 7800
tcgccaaaca agaagccgtc cgaaacaatg caagaaagta cgacgaacat acgatgcgag 7860
aggcgattat ctgatggcg gagccaaaaa tccgggtgcgc cgaaagatga cggcagcagc 7920
agcagccgaa aaattcggtg cctccactcg cacaatccaa cgcttgcgttgc 7980
tgacgattac ctcggccgtc cgaaagctcg ccgtgacaaa gctgtcgagc tgccgaagca 8040
ggggttgaag taccggaaa tcgcccgaagc gatggaactc tcgaccggga tcgtcggccg 8100
attactgcac gacgcccgc ggcacggcga gatttcagcg gaggatctgt cggcgtaacc 8160
aagttagcggtt gtttcgggt tccggccggc gctcggcact cggaccggcc ggcggatgg 8220
gttctgcctc tggcgccagcg tcagctaccg ccgaaggcct gtcatcgacc ggcttcgact 8280
gaagtatgag caacgtcaca gcctgtgatt ggatgatccg ctacgctcg accgctacct 8340
gttcagctgc cgcccgctgg gcatgagcaa cggccaaactc tcgttcaa 8388

<210> 97

<211> 8452

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:vector pTip-RC1

<400> 97

gttaacgacc ggcgggtcc cggacgggaa agagcgggaa gctttgccag agagcgacga 60
cttcccccttgcgttggat tgccggtcag ggcagccatc cggccatcg tgcgtagggtg 120
tcacacccca ggaatcggt cactgaacac agcagccgtt aggacgacca tgactgatgtt 180
ggacaccatc gcaaattccgtt ccgatcccgc ggtgcagcgg atcatcgatg tcaccaagcc 240
gtcacgatcc aacataaaga caacgttgcgtt cgaggacgtc gagccctca tgcacagcat 300

cgccggccggg gtggagttca tcgaggctca cgccagcgac agcagtccctt ttccatctga 360
gttgctggat ctgtcgggc ggcagaacat accggtccgc ctcatcgact cctcgatcg 420
caaccagtttgc ttcaaggggg agcggaaaggc caagacattc ggcattcccc gcgtccctcg 480
cccgccagg ttcggcgata tcgcgagccg gcgtggggac gtcgtcggtc tcgacgggt 540
gaagatcgtc gggaaacatcg gcgcgatagt acgcacgtcg ctgcgcgtcg gagcgtcg 600
gatcatcctg gtggacagtgc acatcaccag catcgccgac cggcgtctcc aaaggccag 660
ccgagggttac gtcttctccc ttcccgtcg tctctccgtc cgccgaggagg ccatcgcc 720
cattcgggac agcggatgc agctgatgac gctcaaggcg gatggcgaca ttccgtgaa 780
ggaactcggg gacaatccgg atcggctggc cttgcgttgc ggcagcgaaa agggtggcc 840
ttccgacctg ttcgaggagg cgcttccgc ctgcgttcc atccccatga tgagccagac 900
cgagtctctc aacgtttccg ttccctcg aatcgcgctg cacgagagga tcgacaggaa 960
tctcgccggcc aaccgataag cgccctgtt cctcgacgc tcggttcctc gacctcgatt 1020
cgtagtgcgtatgatc acgttccg aatcgccatgc acatatcgatgc gtcacggc 1080
gtggccggg cgggcactcc tcgaaggcg gcgcgacgccc cttgaacgac tcgatgactc 1140
tagacgcatac cgaaacctcc accccactca cctagtcga catccgtacc ttggaaaccg 1200
acctgtatttgcatttgcgt tggacatcgac ccagttcggt tgcttagttc aagaccatgt 1260
ccagcccgaa ggcgtccaga ctctagccac cggaggtagt ccggtgccca catccgtcg 1320
cgccccgaacg tcacgcttttgcgtt cccttgcgtt ttgcgtatcg tggcacacct 1380
ctaccgtctg aatttcgagt ctggccctcg ctgcgcacat ctgcactgt gacgctgtca 1440
ggtcacccgc ttgcggctt ccagttccctt tcatcgatgc gagcttcgg tgccgcccgc 1500
cagccctccctt gaccatcctc agatttatg gagtctcgca gtgccttcg ctatctacgt 1560
cctcgccctt gctgtttcg cccagggcac atccgagttc atgttgtccg gactcataacc 1620
ggacatggcc cgtgacccctcg gggtttcggt ccccgccgcg ggactccctca cctccgcctt 1680
cgccggccggg atgatcatcg ggcgtccgtt gatggctatc gccagcatgc ggtggccccc 1740
gcgacgcgcgc cttctgacat tcctcatcac gttcatcgatgc gtccacgtca tcggcgccgt 1800
caccagcagc ttgcagggtct tgctggtcac acgcacgtcg ggagccctcg ccaatgccgg 1860
attcttggca gtggccctgg gggcgccgat ggcgtatggc cccgcccaca tgaaaggcg 1920
cgccacgtcc gtcctccctcg gcgggtgtcac gatcgcatgt gtagccgttg ttcccgcccc 1980
cgcccttcctg ggtgaaatgt gggctggcg tgcagcgatgc tggctgtcg tcgtcatctc 2040
cgccccctgca gtggtggcgat ttatgttcgc cacccggcc gagccgcctt cagagtccac 2100

accgaatgcc aagcgtgaac tgtcctcact gcgctcacgc aagctccagc tcatgcttgt 2160
ccicggggcg ctgatcaacg ggcgaacgtt ctgttcgttc acgtacatgg cgcccacgct 2220
caccgacatc tccggtttcg actcccggtt gattccgttg ctgctggggc tggcgggtt 2280
cgatcggttc atcgggtgtca ggcgtcgagg caggctcgcc gacacccggc cgttccaact 2340
gctcgctgtc gggccgcag cactgttgac gggatggatc gtcttcgttc tcacggcatc 2400
ccaccccgcg gtgacattgg tggatgtgtt cgtgcagggc gctttgtcct tcgcggcgg 2460
ctcgactttt atctccagg tgctctacgc cgccgacgcg gcaccgacct tgggtggatc 2520
gttcgcgacg gccgcgttca acgtcggtgc tgcactggga ccggcgctcg gcgggttggc 2580
gatcggtcatg ggtctgagct accgcgcccc gctctggacg agcgcgcgc tggtgacact 2640
cgcgatcggtc atcggcgacg ccaccttgc tctgtggcgg cgaccagcgt ctgtccacga 2700
atctgtcccc gcctgaccag aaaccaggat ctgtgagttt ggtgactgtat ctgtgcacgc 2760
tcagcagtca ccgcgcgtc gcgtcgtaacc gaggccagc gccaacaggt gtgtggagct 2820
ctgccccgtc ctcttcacg cgaactcact gttcagtgcg ggcatacgtt ctcggtgagt 2880
tccactacag cgaccatgac tagaattgtat ctccctcgacc gccaatttggg catctgagaa 2940
tcatctgcgt ttctcgacg caacgtactt gcaacgttgc aactcctagt gttgtgaatc 3000
acacccacc ggggggttggg attgcagtca ccgatttggt gggtgccggc aggaagatca 3060
cgtttacata ggagcttgca atgagctact ccgtgggaca ggtggccggc ttgcggag 3120
tgacggtgcg cacgctgcac cactacgacg acatcgccct gtcgttaccg agcgagcgc 3180
gccacgcggg ccaccggcgc tacagcgtacg ccgacccgtcg ccggctgcag cagatccgt 3240
tctaccggga gctgggcttc ccgctcgacg aggtcgccgc cctgctcgac gaccggccg 3300
cggacccggcgcg cgccgcacccgt ccggccaggc acgagctgct gtccggccgg atcgggaaac 3360
tgcagaagat ggcggcgcc gttggaggcagg cgttggaggc acgcagcatg ggaatcaacc 3420
tcacccggga ggagaagttt gaggcttgc ggcacttgcg cccggaccag tacgaggagg 3480
aggccggga acgttgggg aacaccgacg cctaccgcca gtccaaaggag aagaccgcct 3540
cgtacaccaa ggaggactgg cagcgcattcc aggacgaggc cgacgagctc acccgccgt 3600
tctgtccctt gatggacgacg ggtgagcccg ccgactccga gggggcgatg gacgcccgg 3660
aggaccacccg gcaggccatc gcccgcacacc actacgactg cgggtacgag atgcacaccc 3720
gcctggcga gatgtacgt tccgacgaac gtttacgcg aaacatcgac gccgccaaggc 3780
cgccctcgcc cgcctacatg cgcgtcgacg tccctcgccaa cgccgtccgg cacacccct 3840
gagcggtggt cgtggccgg gtcctccgc cggctcacc ccacggctca ctcccggcc 3900

acgaccacccg ccgtcccgta cgcgacacc tcggtgccca cgtccgcccgc ctccgtcacg 3960
tcgaaacgga agatccccgg gtaccgagct cgtcagggtgg cactttcggtt ggaaatgtgc 4020
gccaacccc tatttgttta tttttctaaa tacattcaaa tatgtatccg ctcatgagac 4080
aataaccctg ataaatgctt caataatatt gaaaaaggaa gagtatgagt attcaacatt 4140
tccgtgtcgc ccttattccc tttttgcgg cattttgcct tcctgtttt gctcacccag 4200
aaacgctggt gaaagtaaaa gatgctgaag atcagttggg tgcacgagtg ggtaacatcg 4260
aactggatct caacagcggtaa aagatccctg agagtttcg cccgaagaa cgtttccaa 4320
tgcgtgacac tttaaagtt ctgctatgtg gcgcggattt atccgtattt gacgcccggc 4380
aagagcaact cggtcgcgc atacactatt ctcagaatga cttgggttagt tactcaccag 4440
tcacagaaaaa gcatcttacg gatggcatga cagtaagaga attatgcagt gctgccataa 4500
ccatgagtga taacactgctg gccaacttac ttctgacaac gatcggagga ccgaaggagc 4560
taaccgctt tttgcacaac atggggatc atgtaactcg cttgatcgt tggaaaccgg 4620
agctgaatga agccatacca aacgacgagc gtgacaccac gatgcctgtt gcaatggcaa 4680
caacgttgcg caaactatta actggcgaac tacttactct agcttccgg caacaattaa 4740
tagactggat ggaggcggat aaagttgcag gaccacttct gcgcgtggcc cttccggctg 4800
gctggtttat tgctgataaa tctggagccg gtgagcgtgg gtctcgccgtt atcatggcag 4860
cactggggcc agatggtaag ccctcccgta tcgtagttat ctacacgacg gggagtcagg 4920
caactatgga tgaacgaaat agacagatcg ctgagatagg tgcctcactg attaagcatt 4980
ggtaactgtc agaccaagtt tactcatata tacttttagat tgatttaaaa cttcattttt 5040
aatttaaaag gatcttaggtg aagatccctt ttgataatct catgaccaaa atcccttaac 5100
gtgagtttc gttccactga gcgtcagacc ccgtagaaaa gatcaaagga tcttcttgag 5160
atcccttttt tctgcgcgttta atctgctgct tgcaaaacaaa aaaaccacccg ctaccagcgg 5220
tggttttttt gcccggatcaa gagctaccaa ctcttttcc gaaggtaact ggcttcagca 5280
gagcgcagat accaaatact gttctctag tgcgtggccac cacttcaaga 5340
actctgttagc accgcctaca tacctcgctc tgctaatcct gttaccagtg gctgctgcca 5400
gtggcgataa gtcgtgtctt accgggttgg actcaagacg atagttaccg gataaggcgc 5460
agcggtcggg ctgaacgggg ggttcgtgca cacagcccgat cttggagcga acgacccata 5520
ccgaactgag atacctacag cgtgagctat gagaagcgc cacgttccc gaagggagaa 5580
aggcggacag gtatccggta agcggcaggg tcggaacagg agagcgcacg agggagcttc 5640
cagggggaaa cgcctggat cttatagtc ctgtcggtt tcgcccaccc tcgttgcac 5700

gtcgatttt gtgatgctcg tcagggggc ggagcctatg gaaaaacgcc agcaacgcgg 5760
ccttttacg gttccctggcc ttttgcgtgc ctttgctca catgttctt cctgcgttat 5820
ccctgattc tgtggataac cgtattaccg ctttgagtg agctgatacc gctcgccgca 5880
gccgaacgac cgagcgcagc gagtcagtga gcgaggaagc ggaagagcgc ccaatacgca 5940
aaccgcctt ccccgccgt tggccgattc attaatgcag ctggcacgac tagagtcccg 6000
ctgaggcggc gtagcaggc agccgccccca gcggtggtca ccaaccgggg tggaacggcg 6060
ccggtatcgg gtgtgtccgt ggcgcattt ccaacctccg tgtttgtc caggtttcgc 6120
gtgttgca gatggtgcattt ggcacccgca gcgaggggct cacgggtgcc ggtgggtcga 6180
ctagttcagt gatggtgcattt gtgatgctcg agagatctaa gcttggatcc gcggccgcta 6240
cgtagaatttccatatggtg atggtgatgg tggccatgg tataatcttct tcttaaagtt 6300
aaacaaaattt atttcttagac gccgtccacg ctgcctccctt acgtgacgtg aggtgcaagc 6360
ccggacgttc cgcgtgccac gccgtgagcc gccgcgtgcc gcggctccc tcagccggg 6420
cgccgtggg agccgcctc gatatgtaca agcatgggaa ctcgcgcgg actagcggct 6480
tcccacacg ccgtactgac cagcagatca gcgataaaacg ctgtttctgc tggtaagt 6540
gataaaaacc aaataatcga tgaacctcga agtggagttt ccgagctgaa ctatcgat 6600
ttactccgaa aatacgagcg gcgacgaagg gtgttgacc accctgcccgc cgccttcgag 6660
gctcctactt gactaggacc ccgctcgta tgaccagcgt aagtgcgtaa caccttccg 6720
gcaaagaccg gccccctgtc ctcgtgtcgt ccgataagcg cggcatccgg cacgaacttc 6780
gacccaaact tcaacaaatc accacgtcag aaactttaa tgcgtgcggc cggccgattt 6840
ccggcgtgaa cgggtgtgacc atcgtcaacg gtcccaaagg ttccggattt ggaggccttc 6900
gctcctgcgg aaagggctgg atctgcccgt gctgtgcggg aaaagtcggc gcacatcgag 6960
cagacgaaat ttctcaagtt gttgcctatc aactcgggac tggatctgtt gcgtatggta 7020
ccatgaccat gcgcataacc gctggcagc gtttgcataa tttgtggact ggactttcgg 7080
cagcctggaa agctgcgacc aatggccgccc gatggcgtac cgaacgtgaa atgtacggct 7140
gcgacggata cgtacgagct gttgaaatca ctcacggaaa aaacgggtgg cacgttcacg 7200
tccacgctct actcatgttc agcggtgacg tgagtggaaa catcctcgaa tccttctcgg 7260
atgcgatgtt cgatcggtgg acctccaaac tcgtgtctct gggatttgcg cgcactac 7320
gtaattcagg tggactcgac gtaagaaaga ttgggtggaga agctgaccaa gttctcgctg 7380
catacctgac gaaaatttgc tccgggtcg gcatgaaatc cggcagtggc gacggaaaaaa 7440
gtggtcggca cggcaaccgt gcaccttggg aaatcgccgt tggatgcagtc ggaggagatc 7500

cacaaggcgtt ggaactctgg cgcgagttt agttcggttc gatgggacgc cgagcaatcg 7560
catggtctcg tggactgcgc gcccgagctg gtcttggcgt agaactcacg gatgctcaga 7620
ttgtcgaaca ggaagaatct gccccggta tggttgcgt cattccggct cggtcctgga 7680
tcatgattcg gaactgtgcg ccttacgttt tcggagagat ccttggactc gtggaagcgg 7740
gcgcgacctg gaaaaacctt cgtgaccact tgcattatcg attgcctgca gcggatgtgc 7800
ggcctccgat aatatcgatt cgtaagtgaa atgtcttgggt gtgcaacaac tttcactcg 7860
atgaaccaca cttagggca tccccccgat acttgcgcgt ttgaagctgg gtgtctctct 7920
gtcagggctg cgatagcacc gcgttagcggc ttggccitga cagagagacg gctgtttca 7980
tggttggctc cggggggctg accgggcaga tagaaaaagg ccggccgatt tggctgcccga 8040
ctattttgc aggtaaaccc atctcatgag catcaatgaa cgtcccgtt gatcgac 8100
gaatgcagct tcggtagacg tcgatggcgt tgtgatgggt gtgtatctct cgctttatgg 8160
gcaagaaaatc acgctagatc gagatgatgc gttcctactc ctcgatcgac ttcaaggacgc 8220
gttgcgacct caagccaaact aagaaccctc cagatggctc aaacgaggcgc caaactcgct 8280
cctgggcctg cgggcggagc accgaagcgc gagcgaagcgc gagcgcgtag gtgggggagc 8340
ctgcgggcag cggcggcggta gccgccctt tggtaatagg tgcatcatcg ggccatagca 8400
ggtcagagga tggtttacg atgactcatg ctaccacgc caagtactga tg 8452

<210> 98

<211> 8456

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:vector pTip-RC2

<400> 98

gttaacgacc gcgcgggtcc cggacgggga agagcgggga gctttgccag agagcgacga 60
cttcccccttg cgttggtgat tgccggtcag ggcagccatc cgccatcgtc gcgtagggtg 120
tcacacccca ggaatcgctt cactgaacac agcagccgtt aggacgacca tgactgagtt 180
ggacaccatc gcaaatccgtt ccgatcccgcc ggtgcagcgg atcatcgatg tcaccaagcc 240

gtcacgatcc aacataaaga caacgttgcgat cgaggacgtc gagccctca tgcacagcat 300
cgcggccggg gtggagttca tcgaggctca cggcagcgcac agcagtcctt ttccatctga 360
gttgctggat ctgtgcgggc ggcagaacat accggtccgc ctcatcgact cctcgatcgt 420
caaccagttg ttcaaggggg agcggaaggc caagacattc ggcacatcgccc gcgtccctcg 480
cccggccagg ttgcgcata tcgcaaggccg gcgtggggac gtcgtcggtc tcgacgggt 540
gaagatcgic gggaaacatcg ggcgtatgt acgcacgtcg ctgcgcgtcg gagcgtcggg 600
gatcatccgt gtggacagtg acatcaccag catcgccgac cggcgtctcc aaaggccag 660
ccgagggttac gtcttctccc ttcccggtcgt tctctccgtt cgcgaggagg ccatgcctt 720
cattcgggac agcgttatgc agctgtatgc gctcaaggcg gatggcgaca ttccgtgaa 780
ggaactcggg gacaatccgg atcggctggc ctgtgttgc ggcagcgaaa agggtggcc 840
ttccgacctg ttgcaggagg cgtctccgc ctgggtttcc atccccatga tgagccagac 900
cgagtcttc aacgtttccg ttccctcgg aatcgcgctg cacgagagga tcgacaggaa 960
tctcgccggc aaccgataag cgcctctgtt cctcgacgc tcggttcctc gacctcgatt 1020
cgtcagtgtatgatcaccatca cacggcagcg atcaccactg acatatcgag gtcaacggc 1080
gtggtccggg cggcactcc tcgaaggcgc ggccgacgcc cttgaacgac tcgatgactc 1140
tagacgcattc cgaaacctcc accccactca cctagtcgg catccgtacc ttggaaaccg 1200
acctgtatttgcatttca tggacatcga ccagtggcggt tgcttaggttc aagaccatgt 1260
ccagcccgaa ggcgtccaga ctctagccac cggaggttgtt ccgggtggcca catccgtcg 1320
cgccccgaacg tcacgctctt gtgtggcctt cccttgggtt ttgcgtatcag tggcacacct 1380
ctaccgtctg aatttcgagt ctggccctcg ctgcgcacat ctgcactgt gacgctgtca 1440
ggtcacccgc ttgcggcta ccagttcctt tcatcgaatc gagcttcgg tgccggcgc 1500
cagccctccct gaccatcctc agatttatg gagtctcgca gtgccttcg ctatctacgt 1560
cctcgggctt gctgtcttcg cccagggcac atccgagttc atgttgtccg gactcataacc 1620
ggacatggcc cgtgaccccgat ggggtttcggt cccggccgc ggactcctca cctccgcctt 1680
cgcggtcggg atgatcatcg ggcgtccgtt gatggctatc ggcacatgc ggtggccccc 1740
ggcgcgcgc cttctgacat tcctcatcac gttcatgctg gtccacgtca tcggcgcgc 1800
caccagcagc ttgcagggtct tgctggtcac acgcacatcg ggagccctcg ccaatgccgg 1860
attcttggca gtggccctgg gggcggcgat ggcgtgggtg cccggccgaca tgaaagggcg 1920
cgccacgtcc gtcctccctcg gcggtgtcac gatgcgtatgt gtggccgggtg ttcccggggg 1980
cgcccttcctg ggtgaaatgt gggcgtggcg tgcacgttc tggcgtgtcg tcgtcatctc 2040

cgccccctgca ggggtggcga ttatgttcgc caccggcc gagccgcgg 2100
accgaatgcc aagcgtaac tgcctcaact gcgcacgc aagctccagc tcatgcgtgt 2160
cctcgccccgctgatcaacg ggcacacgtt ctgttcgttc acgtacatgg cgccccacgct 2220
caccgacatc tccgggttgc actccgttg gattccgttg ctgctgggct 2280
cgatcggttc atcggtgtca gcgtcggagg caggctcgcc gacacccggc cgttccaact 2340
gcgtcgctgtc gggtccgcag cactgttgac gggatggatc gtcttcgcgtc tcacggcatc 2400
ccaccccgcg gtgacatgg tggatgtttt cgtgcaggc gctttgtcct tcgcgtcgg 2460
ctcgacttttgc atctccagg tgctctacgc cgccgacgcg gcaccgaccc tgggtggatc 2520
gttcgcgacg gccgcgttca acgtcgggtgc tgcactggga ccggcgctcg gcgggttggc 2580
gatcggtca ggtctgagct accgcgcggc gctctggacg agcgcgcgc tggtgacact 2640
cgcgatcggtc atcggtcgac ccacccgttc tctgtggcgg cgaccagcgt ctgtccacga 2700
atctgtcccc gcctgaccag aaaccaggat ctgtgagttt ggtgactgtat ctgtgcacgc 2760
tcagcagtca ccgcgcgttc gcgtcgtaacc gaggccagc gccaacaggt gtgtggagct 2820
ctgccccctgc ctcttcacg cgaactcaact gttcgttgccg gcgatacgtt ctcggtgagt 2880
tccactacag cgaccatgac tagaatttgc tccctcgacc gccaatttggg catctgagaa 2940
tcatctgcgt ttctcgacg caacgtactt gcaacgttgca aactcctagt gttgtgaatc 3000
acacccacc ggggggttggg attgcagtca ccgattttgtt gggtgccccc aggaagatca 3060
cgtttacata ggagcttgca atgagctact ccgtggacca ggtggccggc ttgcggag 3120
tgacggtgccg caccgtgcac cactacgacg acatcggtt gctcgtaacc agcgagcgca 3180
gccacgcggg ccaccggcgc tacagcgacg ccgacccgtca ccggctgcag cagatccgt 3240
tctaccggga gctgggttcc ccgctcgacg aggtcgccgc cctgctcgac gaccggccg 3300
cgaccccgccg cgccgcacccgt cgccgcacgc acgagctgt gtccggccgg atcgggaaac 3360
tgcagaagat ggcggcggcc gtggagcagg cgtggaggc acgcagcatg ggaatcaacc 3420
tcacccggga ggagaagtttcc gaggtcttcg ggcacttcgac ccccgaccag tacgaggagg 3480
agggtccggga acgctggggg aacaccgacg cctaccgcca gtccaaggag aagaccgcct 3540
cgtacaccaa ggaggactgg cagcgcatcc aggacgaggc cgacgagctc acccgccgt 3600
tcgtcgccct gatggacgcg ggtgagcccg ccgactccgaa gggggcgatg gacgcccgg 3660
aggaccaccg gcagggcatc gcccgcacacc actacgactg cgggtacgag atgcacaccc 3720
gcctggcga gatgtacgttccgac gttcacgcg aaacatcgac gccgccaagg 3780
cgggccctcgccgc cgcctacatg cgacgcgcgaa tcctcgccaa ccggccgtccgg cacacccct 3840

gagcgggtggt cgtggcccg gtcctccgccc cggcttcacc ccacggctca ctccggggcc 3900
acgaccaccc cggtcccgta cgcgacacc tcggtgccca cgtccggccgc ctccgtcact 3960
tcgaaacgga agatccccgg gtaccgagct cgtcagggtgg cactttcggt ggaaatgtgc 4020
gcggAACCCC tatttgttta tttttctaaa tacattcaaa tatgtatccg ctcatgagac 4080
aataacccctg ataaaatgcct caataatatt gaaaaaggaa gagtatgagt attcaacatt 4140
tccgtgtcgc ctttattccc tttttgcgg cattttgcct tcctgtttt gctcacccag 4200
aaacgctggt gaaagtaaaa gatgctgaag atcagttggg tgacagatgt ggttacatcg 4260
aactggatct caacagcggt aagatccttg agagtttcg cccgaagaa cgtttccaa 4320
tgcgtgacac tttaaagtt ctgctatgtg ggcgggtatt atccgttatt gacgcccggc 4380
aagagcaact cggtcgccgc atacactatt ctcagaatga cttgggtttag tactcaccag 4440
tcacagaaaa gcatcttacg gatggcatga cagtaagaga attatgcagt gctgccataa 4500
ccatgagtga taacactgctg gccaacttac ttctgacaac gatggagga ccgaaggagc 4560
taaccgctt ttgcacaac atggggatc atgtaactcg cctgatcgt tggaaaccgg 4620
agctgaatga agccatacca aacgacgagc gtgacaccac gatgcctgtt gcaatggcaa 4680
caacgttgcg caaactatta actggcgaac tacttactct agcttccgg caacaattaa 4740
tagactggat ggaggcggat aaagttgcag gaccacttct ggcgtggcc ctccggctg 4800
gtcggttat tgctgataaa tctggagccg gtgagcgtgg gtctcggtt atcattgcag 4860
cactggggcc agatggtaag ccctcccgta tcgtagttat ctacacgacg gggagtcagg 4920
caactatgga tgaacgaaat agacagatcg ctgagatagg tgcctactg attaagcatt 4980
ggtaactgtc agaccaagtt tactcatata tacttttagat tgatttaaaa ctccatttt 5040
aatttaaaag gatcttaggtg aagatcctt ttgataatct catgaccaaa atcccttaac 5100
gtgagtttc gttccactga gcgtcagacc ccgtagaaaa gatcaaagga tcttctttag 5160
atccctttt tctgcgcgtt atctgctgt tgcaaaacaaa aaaaccaccc ctaccagcgg 5220
tggtttgggtt gcccggatcaa gagctaccaa ctcttttcc gaaggtaact ggcttcagca 5280
gagcgcagat accaaatact gttcttctag tgcgtggccac cacttcaaga 5340
actctgttagc accgcctaca tacctcgctc tgctaatcct gttaccatgt gctgctgcca 5400
gtggcgataa gtcgtgtctt accgggttgg acicaagacg atagttaccg gataaggcgc 5460
agcggtcggg ctgaacgggg ggttcgtgca cacagccac ctggagcga acgacccata 5520
ccgaactgag atacctacag cgtgagctat gagaagcgc cacgttccc gaagggagaa 5580
aggcggacag gtatccggta agcggcaggg tcggaacagg agagcgcacg agggagcttc 5640

cagggggaaa cgccctggat ctttatagtc ctgtcgggtt tcgccaccc tcacttgagc 5700
gtcgatttt gtatgtctcg tcagggggc ggagcctatg gaaaaacgcc agcaacgcgg 5760
cccttttacg gttccctggcc ttttgcgtgc cttttgcctca catgttctt cctgcgttat 5820
cccctgattc tgtggataac cgtattaccg cctttgagtg agctgatacc gctcgccgca 5880
gccgaacgac cgagcgcagc gagtcagtga gcgaggaagc ggaagagcgc ccaatacgca 5940
aaccgcctct ccccgccgt tggccgattc attaatgcag ctggcacgac tagagtcccg 6000
ctgaggcggc gtatcaggatc agccgcggca gcgggtgtca ccaaccgggg tggAACGGCG 6060
ccggatcggt gtgtgtccgt ggcgctcatt ccaacctccg tgtttgtc caggttgcgc 6120
gtgttgcagt ccctcgacc ggcacccgca gcgagggct cacgggtgcc ggtgggtcga 6180
ctagttcagt gatggtgatg gtatgtctcg agagatctaa gcttggatcc gcggccgcta 6240
cgtagaattc ccatggcgtg atggtgatgg tggatggccca tatgtatatac tccttcttaa 6300
agttaaacaa aattatttct agacgcgcgc cacgctgcct cctcacgtga cgtgaggtgc 6360
aagcccgac gttccgcgtg ccacgcgcgtg agccgcgcgc tgccgtcggc tccctcagcc 6420
cggcgccgc tgggagcccg cctcgatatac tacaagcatg gggactcgcc gcggactagc 6480
ggcttcccga cacgcgtac tgaccagcag atcagcgata aacgctgtt ctgctggta 6540
agtggataaa aaccaaataa tcgatgaacc tcgaagtggc gtaatccgagc tgaacttagct 6600
ggatttactc cgaaaatacg agcggcgacg aagggtgtt gaccaccctg ccgcgcctt 6660
cgaggctcct acttgactag gacccgcgtc gttatgacca gcgttaagtgc tgaacacctt 6720
tccggcaaag accggcccccc tgcctcggt tcgtccgata agcgcggcat ccggcacgaa 6780
cttcgaccct aacttcaaca aatcaccacg tcagaaactt ttaatgcgtg cggccggccg 6840
atttccggcg tgaacgggtt gaccatcgac aacggtccca aaggttccgg atttggaggc 6900
cttcgctcct gcggaaaggg ctggatctgc ccctgctgtg cggaaaagt cggcgcacat 6960
cgagcagacg aaatttctca agttgttgct catcaactcg ggactggatc tggatcgatg 7020
gtgaccatga ccatgcgcctt taccgcgtgg cagcggttgc atgatttgcgtt gactggactt 7080
tcggcagcct ggaaagctgc gaccaatggc cgccgatggc gtaccgaacg tggatgtac 7140
ggctgcgacg gatacgtacg agctgttgaa atcactcactg gaaaaaacgg tggcacgtt 7200
cacgtccacg ctctactcat gttcagcggt gacgtgagtg agaacatccct cgaatccctc 7260
tcggatgcga tggatcgatcg gtggacccctcc aaactcggtt ctctgggatt tgctgcgcctt 7320
ctacgttaatt cagggtggact cgacgtaaaga aagattggtg gagaagctga ccaagttctc 7380
gctgcataacc tgacgaaaat tgcacccggg gtcggcatgg aagtgcggcag tggcgacgg 7440

aaaagtggtc ggcacggcaa ccgtgcacct tggaaatcg ccgttgcgtgc agtcggagga 7500
gatccacaag cggttggact ctggcgcgag ttgttgtcg gttcgatggg acgccgagca 7560
atgcgttgtt ctcgtggact gcgcgcggaa gctggtcttg gcgtagaact cacggatgct 7620
cagattgtcg aacaggaaga atctgccccg gtcattgttg cgatcattcc ggctcggtcc 7680
tggatgtga ttggaaactg tgcccttac gtttcggag agatccttgg actcgtggaa 7740
gcgggcgcga cctggaaaaa cttcggtgac cacttgcatt atcgattgcc tgcagcggat 7800
gtgcggcctc cgataatatc gattcgtaag taaaatgtct tggtgtgcaaa caactttcac 7860
tcgtatgaac cacactttag ggcattcccc cgatacttgc cgctttaag ctgggtgtct 7920
ctctgtcagg gctgcgtatg caccgcgtag cggcttggcc ttgacagaga gacggcctgt 7980
ttcatggttt gtcgtgggg gctgaccggg cagatagaaaa aaggccggcc gatttggctg 8040
ccgactattt ttgcaggtaa acccatctca tgagcatcaa tgaacgtccc gttggatcg 8100
cagcgaatgc agcttcggta gacgtcgatg gcgttgtat gggtgttat ctctcgctt 8160
atggcaaga aatcacgcta gatcgagatg atgcgttcct actcctcgat cgacttcagg 8220
acgcgttgcg acctaagcc aactaagaac cctccagatg gtcataacga ggcgcaaact 8280
cgctcctggg cctgcggcg gaggccgaa ggcgcgacgca agcggagcgc gtaggtgggg 8340
gagcctgcgg gcagcggcg cggagccgcc gccttggtaa taggtgatca tcggggccat 8400
agcaggtcag aggtgttt tacgtgact catgctcacc acgccaagta ctgatg 8456

<210> 99

<211> 5984

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:vector pNit-QT1

<400> 99

gttaactaga gtaacggct actccgtta acggaccccg ttctcagct ttaggcttga 60
ccccggagcc tgcattgggc attccggcgtaa acaccgggtg gaatcccccc ggcacccggg 120
cttccagca aagatcacctt ggcgcgtatg agtaaggcgt acagaaccac tccacaggag 180

gaccgtcgag atgaaatcta acaatgcgct catcgatc tcggcaccc tcaccctgga 240
tgctgttaggc ataggcttgg ttatgccggt actgccggc ctcttgcggg atatcgcca 300
ttccgacagc atcgccagtc actatggcgt gctgctagcg ctatatgcgt tcatgcatt 360
tctatgcgca cccgttctcg gagcactgtc cgaccgctt ggccgccc cagtcctgct 420
cgcttcgcta ctggagcca ctatcgacta cgcgatcatg gcgaccacac ccgtccctgt 480
gattctctac gccggacgca tcgtggccgg catcaccggc gccacaggtg cggttgtctgg 540
cgccctataatc gccgacatca ccgatgggaa agatcgggct cgccacttcg ggctcatgag 600
cgcttgcgttgc ggcgtggta tggtggcagg ccccggtggcc gggggactgt tggcgccat 660
ctcccttgcatt gcaccattcc ttgcggcggc ggtgcgtcaac ggcctcaacc tactactggg 720
ctgcttccta atgcaggagt cgcataaggg agagcgtcgt ccgatgcctt tgagagcctt 780
caacccagtc agctcccttcc ggtggcgcg gggcatgact atcgtcgccc cacttatgac 840
tgtcttctt atcatgcaac tcgttaggaca ggtggccga ggcgtctggg tcatttcgg 900
cgaggaccgc ttgcgttgc ggcgcacgat gatcgccctg tcgcttgcgg tattcggaat 960
cttgcacgcc ctcgctcaag ctttcgtcac tggtcccggcc accaaacgtt tcggcgagaa 1020
gcaggccatt atcgccggca tggcgccga cgcgtggc tacgtcttgc tggcggtcgc 1080
gacgcgaggc tggatggcct tccccattat gattcttctc gcttccggcg gcatcggtat 1140
gccccgttg caggccatgc tgtccaggca ggttagatgac gaccatcagg gacagcttca 1200
aggatcgctc gcggcttta ccagcctaacc ttgcgtcatt ggaccgctga tcgtcacggc 1260
gatttatgcc gcctcgccga gcacatggaa cgggttggca tggattgttag ggcggccct 1320
ataccttgc tgcctcccg cgttgcgtcg cggtgcatgg agccggccca ctcgacactg 1380
aatggaaagcc ggcggcacct cgctaacggta ttcaccactc caagaattgg agccaatcaa 1440
ttcttgcgga gaactgtgaa tgcgcaaaacc aacccttggc agaacatatac catcgctcc 1500
gccatctcca gcagccgcac gcggcgcac tcggcagcg ttgggtcctg ggcacgggtg 1560
cgcatgatcg tgctcgtc gttgaggtac cgagctcgtc aggtggcact ttccgggaa 1620
atgtgcgcgg aacccttatt tggattttt tctaaataca ttcaaataatg tatccgctca 1680
tgagacaata accctgataa atgcgtcaat aatattgaaa aaggaagagt atgagatattc 1740
aacatttccg tgtcccttattttt ttgcggcatt ttgccttccct gttttgc 1800
acccagaaac gctggtgaaa gtaaaagatg ctgaagatca gttgggtgca cgagtgggtt 1860
acatcgaaact ggatctcaac agcggttaaga tccttgagag ttccggccca gaagaacgtt 1920
ttccaatgat gagcactttt aaagttctgc tatgtggcgc ggtattatcc cgtattgacg 1980

ccgggcaaga gcaactcggt cgccgcatac actattctca gaatgacttg gttgagta 2040
caccagtcac agaaaagcat cttaacggatg gcatgacagt aagagaatta tgcagtgc 2100
ccataaccat gagtgataac actgcggcca acttacttct gacaacgatc ggaggaccga 2160
aggagctaac cgctttttg cacaacatgg gggatcatgt aactcgcc 2220
aaccggagct gaatgaagcc ataccaa 2280
tggcaacaac gttgcgcaaa ctattaactg gcgaactact tactctagct tcccggcaac 2340
aattaataga ctggatggag gcggataaag ttgcaggacc acttctgc 2400
cggtggctg gtttattgt gataaatctg gagccggta gcgtgggtct cgggtatca 2460
ttgcagcact ggggccagat ggttaagccct cccgtatctg agttatctac acgacgggga 2520
gtcaggcaac tatggatgaa cgaaatagac agatcgctga gataggtgcc tcactgatta 2580
agcattggta actgtcagac caagttact cataatact ttagattgtat taaaacttc 2640
attttaatt taaaaggatc taggtgaaga tccttttga taatctcatg accaaaatcc 2700
cttaacgtga gtttcgttc cactgagcgt cagacccgt agaaaagatc aaaggatctt 2760
ctttagatcc ttttttctg cgcgtaatct gctgcttgca aaaaaaaaaa ccaccgctac 2820
cagcggtgtt ttgtttgccg gatcaagagc taccactt tttccgaag gtaactggct 2880
tcagcagagc gcagatacca aatactgttc ttctagtgtt gccgtatgtt ggccaccact 2940
tcaagaactc tgttagcaccg cctacatacc tcgctctgt aatcctgtt ccagtggctg 3000
ctgccagtg 3060
aggcgcagcg gtcgggctga acgggggtt cgtgcacaca gcccagctt gaggcgaacga 3120
cctacaccga actgagatac ctacagcgtg agctatgaga aagcgccacg ctcccgaag 3180
ggagaaaggc ggacaggtat ccggtaagcg gcagggtcgg aacaggagag cgcacgaggg 3240
agcttccagg gggaaacgcc tggtatctt atagtcctgt cgggtttcgc cacctctgac 3300
ttgagcgtcg atttttgtga tgctcgicag gggggcggag cctatggaaa aacgcccagca 3360
acgcggcctt tttacggttc ctggcc 3420
cggttatcccc tgattctgtg gataaccgtt ttaccgc 3480
gccgcagccg aacgaccgag cgacgcgt cagtgagcga ggaagcggaa gagcgc 3540
tacgcaaacc gcctctcccc gcgcgtggc cgattcatta atgcagctgg cacgactaga 3600
gtcccgtga ggcggcgtag caggtcagcc gccccagcgg tggcaccaaa ccgggggtgga 3660
acggcgc 3720
tttcgcgtgt tgcagtccct cgcacccggca cccgcagcga ggggc 3780

ggtcgactag ttcaagtatg gtgatggta tgctcgagag atctaagctt ggatccgcgg 3840
ccgctacgta gaattccat atggatggatgg tggatggc ccatggata tctccttctt 3900
aaagttaaac aaaattattt ctagacgccc tccattatac ctcctcacgt gacgtgaggt 3960
gcaagcccg acgttccgatg tgccacgccc tgagccgccc cgtgccgtcg gctccctcag 4020
cccgggcggc cgtgggagcc cgcctcgata tgcacaccgg agaagctccc agcgtccctcc 4080
tggccgcga tactcgacca ccacgcacgc acaccgcact aacgattcgg ccggcgctcg 4140
atcggccgg cgctcgattc ggccggcgct cgattcgcc ggcgctcgat tcggccggcg 4200
ctcgattcgg ccgagcagaa gagtgaacaa ccaccgacca cgcttccgct ctgcgcgcgg 4260
tacccgaccc acctcccgca gctcgaagca gctccggga gtaccgcgt actcaccgc 4320
ctgtgctcac catccaccga cgcaaagccc aacccgagca cacccttgc accaaggtgc 4380
cgaccgtggc ttccgctcg cagggttcca gaagaaatcg aacgatccag cgcggcaagg 4440
ttcaaaaagc aggggttgtt ggggaggagg tttgggggg tgcgcggg atacctgata 4500
tggctttttt ttgcgtatgc gaataatttt ccatatagcc tcggcgctc ggactcgaat 4560
agttgatgtg ggcgggcaca gttccccat gaaatccgca acggggggcg tgctgagcga 4620
tcggcaatgg gcggatgcgg tttgccttcc gcaccggccg ttgcgcacga acaacctcca 4680
acgaggtcag taccggatga gccgcgacga cgcattggca atgcggtacg tcgagcattc 4740
accgcacgcg ttgcctcgat ctatcgatcg cgactgcgt cacgttgacg ccgcgtatgcg 4800
cgcattcgag caaccatccg accatccggc gccgaactgg gtcgcacaat cgccgtccgg 4860
ccgcgcacac atcggatgtt ggctcgcccc caaccacgtg tgccgcaccg acagcgcgg 4920
actgacgcca ctgcgtacg cccaccgcat cgaaaccggc ctcaagatca gcgtcgccgg 4980
cgatttcgatcg tatggcgggc aactgaccaa aaacccgatt caccggattt gggagacgt 5040
ctacggcccg gccacccgt acacatgcg gcagctggcc accatccaca caccggca 5100
gatgccgcgt cggcccgatc gggccgtggg cctggccgc aacgtcacca tttgcacgc 5160
caccggcga tggcatacc cgcagttgtt gcaacaccga aacggaaaccg gccgcgactg 5220
ggaccatctc gtcctgcagc actgccacgc cgtcaacacc gagttcacga caccactgcc 5280
gttcaccgaa gtacgcgcca cgcgcgaatc catctccaaa tggatctggc gcaatttcac 5340
cgaagaacag taccgagccc gacaaggcga tctcggtcaa aaaggcggca aggcaacgac 5400
actcgccaaa caagaagccg tccgaaacaa tgcaagaaag tacgacgaac atacgatgcg 5460
agaggcgatt atctgatggg cggagccaaa aatccggtgc gccgaaagat gacggcagca 5520
gcagcagccg aaaaattcgg tgcctccact cgcacaatcc aacgcttgc 5580

cgtgacgatt acctcgccg tgcgaaagct cgccgtgaca aagctgtcga gctgcggaag 5640
caggggttga agtaccggaa aatcgccgaa gcgatggAAC tctcgaccgg gatcgctggc 5700
cgattactgc acgacgcccgg caggcacggc gagatttcag cggaggatct gtcggcgtaa 5760
ccaagtcagc gggTTgtcgg gttccggccg gcgctcggca ctcggaccgg ccggcggatg 5820
gtgttctgcc tctggcgcag cgtcagctac cggcgaaggc ctgtcatcga ccggcttcga 5880
ctgaagtatg agcaacgtca cagcctgtga ttggatgatc cgctcacgct cgaccgctac 5940
ctgttcaGct gccgcccgt gggcatgagc aacggccaac tctc 5984

<210> 100

<211> 5988

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:vector pNit-QT2

<400> 100

gttaactaga gtaacgggct actccgttta acggaccccg ttctcacgct ttaggcttga 60
ccccggagcc tgcattgggc attccggcgt gaaccgggtg gaatgcccc ggcacccggg 120
cttccagca aagatcacct ggcgccgatg agtaaggcgt acagaaccac tccacaggag 180
gaccgtcgag atgaaatcta acaatgcgct catcgatc ctcggcaccg tcacccctgga 240
tgctgttaggc ataggcttgg ttatgccgt actgccggc ctcttgcggg atatcgcca 300
ttccgacagc atcgccagtc actatggcgt gctgctagcg ctatatgcgt ttagtgcatt 360
tctatgcgca cccgttctcg gagcactgtc cgaccgttt ggccgccgccc cagtcctgct 420
cgcttcgcta ctggagcca ctatcgacta cgcgatcatg ggcaccacac ccgtccctgtg 480
gattctctac gcccggacgca tcgtggccgg catcaccggc ggcacagggtg cggttgcgtgg 540
cgcttatatac gcccggacatca ccgatgggaa agatcggtt cggccacttcg ggctcatgag 600
cgcttgcgtttc ggcgtggta tggggcagg ccccgtggcc gggggactgt tgggcggcat 660
ctccttgcatttgcat gcaccattcc ttgcggccggc ggtgcgtcaac ggcctcaacc tactactggg 720
ctgcttccta atgcaggagt cgcataaggg agagcggtcgt ccgatgcctt tgagagccctt 780
caacccagtc agctccattcc ggtggccgccc gggcatgact atcgatcgccg cacttatgac 840

tgcttcctt atcatgcaac tcgttaggaca ggtgccggca gcgcctctggg tcattttcg 900
cgaggaccgc tticgcgtgga gcgcgacgat gatcgccctg tcgcttgcgg tattcggaat 960
cttgcacgcc ctcgctcaag cttcgctcac tggtcccggcc accaaacgtt tcggcgagaa 1020
gcaggccatt atcgccggca tggcggccga cgcgctggc tacgtcttgc tggcggtcgc 1080
gacgcgagggc tggatggcct tccccattat gattcttctc gcttccggcg gcatcggtat 1140
gccccgcgttg cagggccatgc tgtccaggca ggttagatgac gaccatcagg gacagcttca 1200
aggatcgctc gcggcttta ccagccta ac ttcgatcatt ggaccgctga tcgtcacggc 1260
gatttatgcc gcctcggcga gcacatggaa cgggttggca tggattgttag gcccgcct 1320
atacccttgtc tgcctcccg cgttgcgtcg cggtgcatgg agccggccca cctcgacctg 1380
aatggaagcc ggcggcacct cgctaacggta ttcaccactc caagaattgg agccaatcaa 1440
ttcttgcgga gaactgtgaa tgcgcaaacc aacccttggc agaacatatac catcgctcc 1500
gccatctcca gcagccgcac gcggcgcatac tcgggcagcg ttgggtcctg gccacgggtg 1560
cgcatgatcg tgctccgtc gttgaggtac cgagctcgtc aggtggcact ttcggggaa 1620
atgtgcgcgg aacccttatt tgtttatttt tctaaataca ttcaaataatg tatccgctca 1680
tgagacaata accctgataa atgcttaat aatattgaaa aaggaagagt atgagttttc 1740
aacatttccg tgcgcctt attcccttt ttgcggcatt ttgccttcct gttttgcctc 1800
acccagaaac gctggtgaaa gtaaaagatg ctgaagatca gttgggtgca cgagtgggtt 1860
acatcgaact ggatctcaac agcggtaaag tccttgagag tttcgcccc gaagaacgtt 1920
ttccaatgat gagcactttt aaagttctgc tatgtggcgc ggtattatcc cgtattgacg 1980
ccggcaaga gcaactcggt cgccgcatac actattctca gaatgacttg gttgagttact 2040
caccagtac agaaaagcat cttacggatg gcatgacagt aagagaatta tgcagtgcgt 2100
ccataaccat gagtgataac actgcggcca acttacttct gacaacgatc ggaggaccga 2160
aggagctaac cgctttttg cacaacatgg gggatcatgt aactcgccctt gatcggttggg 2220
aaccggagct gaatgaagcc ataccaaactg acgagcgtga caccacgtg cctgttagcaa 2280
tggcaacaac gttgcgcaaa ctattaactg gcgaactact tactcttagct tcccgcaac 2340
aattaataga ctggatggag gcggataaag ttgcaggacc acttctgcgc tcggcccttc 2400
cggtggctg gtttattgct gataaatctg gagccgggtga gcgtgggtct cgccgtatca 2460
ttgcagcact ggggccagat ggtaagccct cccgtatcgt agttatctac acgacgggaa 2520
gtcaggcaac tatggatgaa cgaaatagac agatcgctga gataggtgcc tcactgatta 2580
agcatggta actgtcagac caagttact cataataact ttagattgat taaaacttc 2640

attttaatt taaaaggatc taggtgaaga tccttttga taatctcatg accaaaatcc 2700
cttaacgtga gtttcgttc cactgagcgt cagaccccg agaaaagatc aaaggatct 2760
ctttagatcc tttttctg cgcgtaatct gctgcttgc aacaaaaaaaa ccaccgctac 2820
cagcgggtgt ttgttgccg gatcaagagc taccaactct tttccgaag gtaactggct 2880
tcagcagagc gcagatacca aatactgttc ttctagtgtt gccgtatgtt ggccaccact 2940
tcaagaactc tgttagcaccg cctacatacc tcgctctgt aatcctgtt ccagttggctg 3000
ctgccagtg cgataagtgc tgcttaccg ggttggactc aagacgatag ttaccggata 3060
aggcgcagcg gtcgggctga acgggggtt cgtgcacaca gcccagctt gagcgaacga 3120
cctacaccga actgagatac ctacagcgtg agctatgaga aagcgccacg ctccccgaag 3180
ggagaaaggc ggacaggtat ccggtaagcg gcagggtcgg aacaggagag cgcacgaggg 3240
agcttccagg gggaaacgccc tggtatctt atagtcctgt cgggttgc caccctgtac 3300
ttgagcgtcg attttgtga tgctcgtag gggggcggag cctatggaaa aacgcccagca 3360
acgcggcctt ttacggttc ctggccctt gctggcctt tgctcacatg ttcttcctg 3420
cgttatcccc tgattctgtg gataaccgtt ttaccggctt tgagttagt gataccgtc 3480
gccgcagccg aacgaccgag cgcaagcgagt cagttagcga ggaagcggaa gagcgcggaa 3540
tacgcaaacc gcctctcccc gcgcgttggc cgattcatat atgcagctgg cacgactaga 3600
gtcccgctga ggcggcgtag caggtcagcc gccccagcgg tggcaccaa ccggggtgga 3660
acggcgccgg tatcggtgt gtccgtggcg ctcatccaa cctccgtgt tttgtgcagg 3720
tttcgcgtgt tgcaagtccct cgacccggca cccgcagcga gggctcacg ggtgccgg 3780
ggtcgactag ttcaagtgtat gtatgggtga tgctcgagag atctaagctt ggtccgcgg 3840
ccgctacgtt gaattcccat ggcgtatgg tgcgtatggat ggcctatgt tatatctcct 3900
tcttaaaggtaa aacaaaaatt atttctagac ggcgtccatt atacccctc acgtgacgtg 3960
aggcgcaagc ccggacgttc cgcaatggccac ggcgtgagcc ggcgcgtgcc gtcggctccc 4020
tcagcccgcc cggccgtggg agcccgccctc gatatgtaca cccgagaagc tcccgatcg 4080
ctccctggcc gcgatactcg accaccacgc acgcacacccg cactaacgtt tcggccggcg 4140
ctcgattcgg cggcgctcg attcggccgg cgctcgatcc ggccggcgct cgattcggcc 4200
ggcgctcgat tcggccgagc agaagagtga acaaccacccg accacgcttc cgctctgcgc 4260
gccgtacccg acctaccccg cgcagctcgat agcagctccc gggagttaccg ccgtactcac 4320
ccgcctgtgc tcaccatcca ccgacgcaaa gcccaccccg agcacacccctc ttgcaccaag 4380
gtgccgaccg tggcttccg ctcgcagggt tccagaagaa atcgaacgtt ccagcgcggc 4440

aaggttcaaa aagcaggggt tggtgggag gaggttttg ggggtgtcgc cgggataacct 4500
gatatggctt tgtttgcgt agtcgaataa tttccatat agcctcgccg cgtcgactc 4560
gaatagttga tgtggcggg cacagttgcc ccatgaaatc cgcaacgggg ggcgtgctga 4620
gcatcgccaa atggcggat gcggtgttgc ttccgcaccg gccgttgcgc acgaacaacc 4680
tccaacgagg tcagtaccgg atgagccgacg acgacgcatt ggcaatgcgg tacgtcgagc 4740
attcaccgca cgcgttgctc ggatctatcg tcatcgactg cgatcacgtt gacgcccga 4800
tgcgcgcatt cgagcaacca tccgaccatc cggcgccgaa ctgggtcgca caatgccgt 4860
ccggccgcgc acacatcgga tggtggtcg gccccaaacca cgtgtgccgc accgacagcg 4920
cccgactgac gccactgcgc tacgcccacc gcatcgaaac cggcctaag atcagcgtcg 4980
gcggcgattt cgcgtatggc gggcaactga caaaaaaccg gattcacccc gattgggaga 5040
cgatctacgg cccggccacc cctgtacacat tgcggcagct ggccaccatc cacacacccc 5100
ggcagatgcc gcgtcgccccc gatcgcccg tgggcctggg ccgcaacgtc accatgtcg 5160
acgccacccg gcgatggca taccgcagt ggtggcaaca ccgaaacggg accggccgcg 5220
actgggacca tctcgccctg cagcactgcc acgcccgtcaa caccgagttc acgacaccac 5280
tgccgttac cgaagtacgc gccaccgcgc aatccatctc caaatggatc tggcgaatt 5340
tcaccgaaga acagtaccga gcccgacaag cgcatctcg tcaaaaaggc ggcaaggcaa 5400
cgacactcgc caaacaagaa gccgtccgaa acaatgcaag aaagtacgac gaacatacga 5460
tgcgagaggc gattatctga tggcgaggc caaaaatccg gtgcgcgaa agatgacggc 5520
agcagcagca gccgaaaaat tcggtgccctc cactcgacca atccaacgct tgtttgcgt 5580
gccgcgtgac gattacctcg gccgtgcgaa agctcgccgt gacaaagctg tcgagctgcg 5640
gaagcagggg ttgaagtacc gggaaatcgc cgaagcgatg gaactctcga ccggatcg 5700
cgcccgattt ctgcacgacg cccgcaggca cggcgagatt tcagcggagg atctgtcg 5760
gtaaccaagt cagcgggttg tcgggtccg gccggcgctc ggcactcgga ccggccggcg 5820
gatggtgttc tgcctctggc gcagcgatc ctaccgcga aggccgtca tcgaccggct 5880
tcgactgaag tatgagcaac gtcacagcct gtgattggat gatccgctca cgctcgaccg 5940
ctacctgttc agctgcccgc cgctggcat gagcaacggc caactctc 5988

<210> 101

<211> 6058

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:vector pNit-RT1

<400> 101

gttaactaga gtaacggct actccgtta acggaccccg ttctcacgct ttaggcttga 60
ccccggagcc tgcattgggc attccggcgt gaacccggtg gaatgcggcc ggcacccggg 120
ctttccagca aagatcacct ggccggatg agtaaggcgt acagaaccac tccacaggag 180
gaccgtcgag atgaaatcta acaatgcgct catcgatc tcggcaccg tcaccctgga 240
tgctgttaggc ataggcttgg ttatgcccgt actgcccggc ctcttgcggg atatcgcca 300
ttccgacagc atcgccagtc actatggcgt gctgctagcg ctatatgcgt tcatgcaatt 360
tctatgcgca cccgttctcg gagcactgtc cgaccgctt ggccgcccgc cagtccgt 420
cgcttcgcta cttggagcca ctatcgacta cgcgatcatg ggcaccacac ccgtccgtg 480
gattctctac gcccggacgca tcgtggccgg catcaccggc gccacagggtg cggttgctgg 540
cgccatatatc gcccacatca ccgatgggaa agatgggct cgccacttgc ggctcatgag 600
cgcttgtttc ggcgtggta tggtggcagg cccctggcc gggggactgt tggcgccat 660
ctccttgcattt gcaccattcc ttgcggccgc ggtgctcaac ggcctcaacc tactactggg 720
ctgcttccta atgcaggagt cgcataggg agagcgtcgt ccgatgcctt tgagagcctt 780
caacccagtc agctccattcc ggtggccgc gggcatgact atcgccggc cacttatgac 840
tgtcttctt atcatgcaac tcgttaggaca ggtgccggca ggcgtctggg tcatttcgg 900
cgaggaccgc ttgcgttgaa ggcgtacatgatcatggcgt tcgcttgccg tattcgaaat 960
cttgcacgcc ctcgctcaag cttcgctac tggccggcc accaaacgtt tcggcgagaa 1020
gcaggccattt atcgccggca tggccggcga cgccgtggc tacgttgc tggcggttgc 1080
gacgcgaggc tggatggcct tccccattt gattcttctc gcttccggcg gcatcggtt 1140
gcccgcgttgc caggccatgc tgtccaggca ggttagatgac gaccatcagg gacagcttca 1200
agatcgctc gcccgttgc ccagcctaacc ttgcgttgcatt ggaccgctga tcgtcacggc 1260
gatttatgcc gcctcgccga gcacatggaa cgggttggca tggattgttag ggcggccct 1320
ataccttgc tgcctccccg cggtgcgtcg cgggtgcatttgg agccggccca cctcgacccgt 1380
aatggaaagcc ggcggcacct cgcttaacggta ttccaccatc caagaattgg agccaaatcaa 1440
ttcttgcggaa gaactgtgaa tgcgcaaaacc aacccttggc agaacatatc catcgctcc 1500

gccatctcca gcagccgcac gcggcgcac tcggcagcg ttgggcctg gccacgggtg 1560
cgcatgatcg tgctcctgtc gttgaggtac cgagctcgac aggtggcact ttgcgggaa 1620
atgtgcgcgg aaccctatt tttttttt tctaaataca ttcaaataatg tatccgctca 1680
tgagacaata accctgataa atgcttcaat aatattgaaa aaggaagagt atgagtattc 1740
aacatttcg tgtgcctt attccctttt ttgcggcatt ttgccttcgttttgctc 1800
acccagaaac gctggtgaaa gtaaaagatg ctgaagatca gttgggtgca cgagtgggtt 1860
acatcgaact ggatctcaac agcgtaaga tccttgagag ttgcgcctt gaagaacgtt 1920
ttccaatgtat gagcactttt aaagttctgc tatgtggcgc ggtattatcc cgtattgacg 1980
ccgggcaaga gcaactcggt cgccgcatac actattctca gaatgactt gttgagttact 2040
caccagtac agaaaagcat cttacggatg gcatgacagt aagagaatta tgcagtgctg 2100
ccataaccat gagtgataac actgcggcca acttacttct gacaacgatc ggaggaccga 2160
aggagctaac cgctttttt cacaacatgg gggatcatgt aactgcctt gatcgttggg 2220
aaccggagct gaatgaagcc ataccaaacg acgagcgtga caccacgatg cctgttagcaa 2280
tggcaacaac gttgcgcaaa ctattaactg gcgaactact tactctagct tcccgcaac 2340
aattaataga ctggatggag gcggataaag ttgcaggacc acttctgcgc tcggcccttc 2400
cggtggctg gtttattgt gataaatctg gagccggta gctgggtct cgccgtatca 2460
ttgcagcact gggccagat ggttaagccct cccgtatctg agttatctac acgacgggaa 2520
gtcaggcaac tatggatgaa cgaaatagac agatcgctga gataggtgcc tcactgatta 2580
agcattggta actgtcagac caagttact cataataact ttagattgtat taaaacttc 2640
attttaatt taaaaggatc taggtgaaga tccttttga taatctcatg accaaaatcc 2700
cttaacgtga gtttcgttc cactgagcgt cagacccgt agaaaagatc aaaggatctt 2760
tttgagatcc ttttttctg cgcgtaatct gctgcttgca aaaaaaaaaa ccaccgctac 2820
cagcggtggt ttgtttgccg gatcaagagc taccactt tttccgaag gtaactggct 2880
tcagcagagc gcagatacca aatactgttc ttctagtgta gccgtatgtt ggccaccact 2940
tcaagaactc tgttagcaccg cctacatacc tcgctctgt aatcctgtta ccagtggctg 3000
ctgccagtg cgataagtgc tgtcttaccg gttggactc aagacgatag ttaccggata 3060
aggcgcagcg gtcggctga acgggggtt cgtgcacaca gcccagctt gagcgaacga 3120
cctacacca actgagatac ctacagcgtg agctatgaga aagcgccacg ctcccgaag 3180
ggagaaaaggc ggacaggtat ccggtaagcg gcagggtcgg aacaggagag cgacacgaggg 3240
agcttccagg gggaaacgcc tggtatctt atagtcctgt cgggtttcgc cacctctgac 3300

ttgagcgtcg attttgtga tgctcgtag gggggcggag cctatggaaa aacgccagca 3360
acgcggcctt ttacggttc ctggccttt gctggcctt tgctcacatg ttcttcccg 3420
cgttatcccc tgattctgtg gataaccgta ttaccgcctt tgagttagct gataccgctc 3480
gccgcagccg aacgaccgag cgcaagcgagt cagttagcga ggaagcggaa gagcgcggaa 3540
tacgcaaacc gcctctcccc gcgcgttggc cgattcatta atgcagctgg cacgactaga 3600
gtcccgctga ggcggcgttag caggtcagcc gccccagcgg tggcaccaa ccgggggtgga 3660
acggcgccgg tatcggtgt gtccgtggcg ctcatccaa cctccgtgt tttgtgcagg 3720
tttcgcgtgt tgcaagtccct cgcacggca cccgcagcga ggggcacg ggtgcgggtg 3780
ggtcgactag ttcaagtgtatg gtgatggta tgctcgagag atctaagctt ggatccgcgg 3840
ccgctacgta gaattcccat atggtgatgg tgatggtggc ccatggata tctccttc 3900
aaagttaaac aaaatttattt cttagacgccc tccattatac ctccctacgt gacgtgaggt 3960
gcaagcccg acgttcccg tgcacgcgc tgagccgcgc cgtgccgtcg gctccctcag 4020
cccgccggc cgtgggagcc cgccctcgata tgtacaagca tggggactcg ccgcggacta 4080
gcggcttccc gacacgcccgt actgaccagc agatcagcga taaacgctgt ttctgctggt 4140
taagtggata aaaaccaaataatcgatgaa cctcgaagt gagtatccga gctgaactag 4200
ctggatttac tccgaaaata cgagcggcga cgaagggtgt tggaccaccc tgcgcggcc 4260
ttcgaggctc ctacttgact aggaccccgc tcgttatgac cagcgttaatgct gctgaacacc 4320
tttccggcaa agaccggccc cctgtccctcg tgtcgtccga taagcgcggc atccggcact 4380
aacttcgacc caaacttcaa caaatcacca cgtcagaaac ttttaatgcg tgcggccggc 4440
cgatttccgg cgtgaacggt gtgaccatcg tcaacggtcc caaagggtcc ggatttggag 4500
gccttcgctc ctgcggaaag ggctggatct gcccctgctg tgcggaaaaa gtcggcgcac 4560
atcgagcaga cgaatttctt caagtttg ctcatcaact cggactgga tctgttgca 4620
tggtgaccat gaccatgcgc cataccgctg ggcagcggtt gcatgatttggactggac 4680
tttcggcagc ctggaaagct gcgaccaatg gccgcccgtg gcgtaccgaa cgtgaaatgt 4740
acggctgcga cggatacgta cgagctttg aaatcactca cggaaaaaaac ggttggcact 4800
ttcacgtcca cgctctactc atgttcagcg gtgacgtgag tgagaacatc ctcgaatcct 4860
tctcgatgc gatgttcgat cggtgaccc ccaaactcggtt gtctctggaa tttgctgcgc 4920
cactacgtaa ttcaagggtgaa ctgcacgtaa gaaagattgg tggagaagct gaccaagtcc 4980
tcgctgcata cctgacgaaa attgcacccg gggtcggcat ggaagtccgc agtggcgcacg 5040
aaaaaagtgg tcggcacggc aaccgtgcac cttggaaat cgccgttgat gcagtcggag 5100

gagatccaca agcggtggaa ctctggcgag agttttaggtt cggttcgatg ggacgccgag 5160
caatcgcatg gtctcggtt ctgcgcgcgg gagctgggtct tggcgttagaa ctcacggatg 5220
ctcagattt cgaacaggaa gaatctgccc cggtcatgtt tgcatcatt ccggctcggt 5280
cctggatgtt gattcggaac tgtgcgcctt acgttttcgg agagatcctt ggactcgtgg 5340
aagcgggcgc gacctggaa aaccttcgtt accacttgca ttatcgattt cctgcagcgg 5400
atgtgcggcc tccgataata tcgattcgta agtggaaatgt ctgggtgtgc aacaactttc 5460
actcgatgtt accacacttgg agggcatccc cccgatactt gccgctttga agctgggtgt 5520
ctctctgtca gggctgcgtt agcaccgcgtt agcggcttgg ctttgacaga gagacggcct 5580
gtttcatggt tggctcggtt gggctgaccg ggcagataga aaaaggccgg ccgatttggc 5640
tgccgactat ttttgcaggtt aaaccatctt catgagcatc aatgaacgtt ccgttggat 5700
cgcagcgaat gcagcttcgg tagacgttgcga tggcgttggt atgggtgtgtt atctctcgct 5760
ttatggcaa gaaatcacgc tagatcgaga tggatcggttcttactcctcg atcgacttca 5820
ggacgcgttgcgaccg ccaactaaga accctccaga tggtctaaac gaggcgcaaa 5880
ctcgcttcgttgcgaccg aagcgcgagc gaagcggagc gcgttaggtgg 5940
gggagcctgcgaccg aagcgcgagc ccgccttggt aataggtgtt catcggttgc 6000
atagcaggatgtt tttacgttgcata ccacgccaag tactgtatg 6058

<210> 102

<211> 6062

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:vector pNit-RT2

<400> 102

gttaactaga gtaacggctt actccgttta acggaccccg ttctcactgtt ttaggcttga 60
ccccggagcc tgcattgggc attccgggtt gaacccgggtt gaatgcccccc ggcacccggg 120
ttttccatca aagatcacctt ggcgcgttgc agttaggcgtt acagaaccac tccacaggag 180
gaccgtcgatgtt acaatgcgtt catcgatc ctcggcaccg tcaccctggatgtt 240

tgctgttaggc ataggcttgg ttatgccggt actgccggc ctcttgcggg atatcgtcca 300
ttccgacagc atcgccagtc actatggcgt gctgctagcg ctatatgcgt tcatgcatt 360
tctatgcgca cccgttctcg gagcactgtc cgaccgctt ggccgccc cagtcctgct 420
cgcttcgcta cttggagcca ctatcgacta cgcgatcatg gcgaccacac ccgtccgtg 480
gattctctac gccggacgca tcgtggccgg catcacccggc gccacaggtg cggttgctgg 540
cgccatatatc gccgacatca ccgatgggga agatcgggct cgccacttcg ggctcatgag 600
cgcttgcattt ggcgtggta tggtggcagg cccctggcc gggggactgt tggcgccat 660
ctccttgcattt gcaccattcc ttgcggccgc ggtgctcaac ggcctcaacc tactactggg 720
ctgcttccta atgcaggagt cgcataggg agagcgtcg ccgatgcct tgagagcctt 780
caacccagtc agctccattcc ggtggccgc gggcatgact atcgccgcg cacttatgac 840
tgtcttcattt atcatgcaac tcgttaggaca ggtgccggca ggcgccttggg tcatttcgg 900
cgaggaccgc tttcgcttggaa ggcgcacgat gatcgccctg tcgcttgcgg tattcggaat 960
cttgcacgcc ctcgctcaag ccttcgtcac tggtcccggcc accaaacgtt tcggcgagaa 1020
gcaggccatt atcgccggca tggcggccga cgcgctggc tacgtcttgc tggcgccgc 1080
gacgcgaggc tggatggcct tccccattat gatttttc tgcgtccggc gcatcggtt 1140
gccccgttgc cagggcatgc tgcaggca ggttagatgac gaccatcagg gacagcttca 1200
aggatcgctc ggcgccttta ccagcctaacc ttcgatcatt ggaccgctga tcgtcacggc 1260
gatttatgcc gcctcgccga gcacatggaa cgggttggca tggattgttag ggcgcgcct 1320
atacccttgc tgcctcccg cggtgcgtcg cggatcgatgg agccggccca cctcgaccct 1380
aatggaaagcc ggcggcacct cgctaacggta ttcaccactc caagaattgg agccaatcaa 1440
ttcttgcgga gaactgtgaa tgcgcaaacc aacccttggc agaacatatac catcgcttcc 1500
gccatctcca gcagccgcac gcccgcac tcggcagcg ttgggtccctg gcccgggtt 1560
cgcatgatcg tgcctcgatcg gttgaggtac cgagctcgatcg aggtggact ttgcgggaa 1620
atgtgcgccc aacccttattt tggatattt tctaaataca ttcaaatatg tatccgctca 1680
tgagacaata accctgataa atgcttaat aatattggaa aaggaagagt atgagttttc 1740
aacatttccg tgtcgccctt attccctttt ttgcggcatt ttgccttccctt gttttgc 1800
acccagaaac gctgggtgaaa gtaaaagatg ctgaagatca gttgggtgca cgagtgggtt 1860
acatcgaaact ggatctcaac agcggtaaaga tccttgagag tttcgcccc gaagaaacgtt 1920
ttccaatgt gagcactttt aaagttctgc tatgtggccgc ggtattatcc cgtattgacg 1980
ccggcaaga gcaactcggt cgccgcatac actattctca gaatgacttgc ttgagttact 2040

caccagtac agaaaagcat cttacggatg gcatgacagt aagagaatta tgcagtgcgt 2100
ccataaccat gagtgataac actgcggcca acttacttct gacaacgatc ggaggaccga 2160
aggagctaac cgctttttg cacaacatgg gggatcatgt aactcgccctt gatcggttggg 2220
aaccggagct gaatgaagcc ataccaaacg acgagcgtga caccacgatg cctgttagcaa 2280
tggcaacaac gtgcgc当地 ctttttttttgcgc当地 gcttttttttgcgc当地 2340
aattaaataga ctggatggag gcggataaag ttgcaggacc acttctgc当地 tcggcccttc 2400
cggtggctg gtttattgct gataaatctg gagccggta gcgtgggtct cgcggatca 2460
ttgcagcact gggccagat ggttaagccct cccgtatcgt agttatctac acgacgggga 2520
gtcaggcaac tatggatgaa cgaaatagac agatcgctga gataggtgcc tcactgatta 2580
agcattggta actgtcagac caagtttact cataataact tttagattgtat ttaaaacttc 2640
attttaatt taaaaggatc taggtgaaga tccttttga taatctcatg accaaaatcc 2700
cttaacgtga gtttcgttc cactgagcgt cagacccgt agaaaagatc aaaggatctt 2760
cttgagatcc ttttttctg cgcgtaatct gctgcttgca aacaaaaaaa ccaccgctac 2820
cagcgggtgt ttgtttgccc gatcaagagc taccacttct tttccgaag gtaactggct 2880
tcagcagagc gcagatacca aatactgttc ttcttagtta ggcgttagtta ggccaccact 2940
tcaagaactc ttagcaccg cctacatacc tcgctctgct aatcctgtta ccagtggctg 3000
ctgccagtg cgataagtgc tgtcttaccg ggttggactc aagacgatag ttaccggata 3060
aggcgcagcg gtcgggctga acgggggtt cgtgcacaca gcccagctt gagcgaacga 3120
cctacaccga actgagatac ctacagcgtg agctatgaga aagcgccacg cttccgaag 3180
ggagaaaaggc ggacaggtat ccggtaagcg gcaggggtcg aacaggagag cgcacgaggg 3240
agcttccagg gggaaacgcc tggtatctt atagtcctgt cgggtttcgc cacctctgac 3300
ttgagcgtcg attttigtga tgctcgtag gggggcggag cctatggaaa aacgccagca 3360
acgcggcctt tttacggttc ctggcccttt gctggccttt tgctcacatg ttcttcctg 3420
cgttatcccc tgattctgtg gataaccgtt ttaccggctt tgagttagt gataccgctc 3480
gccgcagccg aacgaccgag cgcagcgtt cagttagcga ggaagcggaa gagcgc当地 3540
tacgcaaacc gcctctcccc gcgcgttggc cgattcatta atgcagctgg cacgactaga 3600
gtcccgctga ggcggcgttag caggtcagcc gccccagcgg tggcaccaa ccgggggtgga 3660
acggcgc当地 tatcggtgt gtccgtggcg ctcatccaa cctccgtgt tttgtgcagg 3720
tttcgcgtgt tgcatccct cgcaccggca cccgcagcga ggggctcact ggtgc当地 3780
ggtcgactag ttcatgtatg gtgtatggta tgctcgagag atctaagctt ggtatccgc当地 3840

ccgctacgt aattccat ggcgtatgg tggatggat gcccataatg tataatctcct 3900
tcttaaagt aaacaaaatt atttcttagac gccgtccatt atacctcctc acgtgacgtg 3960
aggtgcaagc ccggacgttc cgctgtccac gccgtgagcc gccgcgtgcc gtcggctccc 4020
tcagcccggg cggccgtggg agcccgctc gatatgtaca agcatgggga ctgcgcgg 4080
actagcgct tcccgacacg ccgtactgac cagcagatca gcgataaaacg ctgttctgc 4140
tggtaagt gataaaaacc aaataatcga tgaacctcga agtggagtat ccgagctgaa 4200
ctagctggat ttactccgaa aatacggacg gcgacgaagg gtgtggacc accctgccc 4260
cgccctcgag gctcctactt gactaggacc ccgctcgta tgaccagcgt aagtgtgaa 4320
caccttccg gcaaagaccg gccccgttc ctcgtgtcgt ccgataagcg cgccatccgg 4380
cacgaacttc gacccaaact tcaacaaatc accacgtcag aaactttaa tgcgtgcggc 4440
cgcccgatt ccggcgtgaa cgggtgtgacc atcgtcaacg gtcccaaagg ttccggattt 4500
ggaggccctc gtcctgcgg aaagggtgg atctgcccct gctgtgcggg aaaagtgcgc 4560
gcacatcgag cagacgaaat ttctcaagtt gttgctcatc aactcgggac tggatctgtt 4620
gcatggtga ccatgaccat gcgcataacc gctggcagc gttgcatga tttgtggact 4680
ggactttcgg cagccctggaa agctgcgacc aatggccgcc gatggcgtac cgaacgtgaa 4740
atgtacggct ggcacggata cgtacgagct gttgaaatca ctcacggaaa aaacggttgg 4800
cacgttcacg tccacgctct actcatgttc agcggtgacg tgagtggaa catcctcgaa 4860
tccttcctgg atgcgatgtt cgatcgggtgg acctccaaac tcgtgtctct gggatttgct 4920
gcccactac gtaattcagg tggactcgac gtaagaaaga ttgggtggaga agctgaccaa 4980
gttctcgctg catacctgac gaaaattgca tccgggtcg gcatggaaat cggcagtggc 5040
gacggaaaaaa gtggtcggca cggcaaccgt gcaccttggg aaatcgccgt tggatgcagtc 5100
ggaggagatc cacaagcggtt ggaactctgg cgcgagtttg agttcggttc gatggacgc 5160
cgagcaatcg catggctcg tggactcgac gcccggctg gtcttggcgt agaactcact 5220
gatgctcaga ttgtcgaaca ggaagaatct gccccggta tggatgcgtt cattccggct 5280
cggtcctggta tggatgtcg gaaactgtcg ctttacgttt tcggagagat ctttggactc 5340
gtggaaagcgg ggcgcacactg ggaaaacctt cgtgaccact tgcattatcg attgcctgca 5400
gcggatgtgc ggcctccgat aatatcgatt cgtaaatgaa atgtcttggt gtgcaacaac 5460
tttcaactcgat atgaaccaca cttgaggca tccccccgtt acttgcgtt ttgaagctgg 5520
gtgtctctct gtcaggcgtc cgtatgcacc gcgtacggc ttggccctga cagagagacg 5580
gcctgtttca tggatggcgtt cggggggcaga accgggcaga tagaaaaagg ccggccgatt 5640

tggtgtccga ctatttgc aggtaaaccc atctcatgag catcaatgaa cgtcccggt 5700
gtatgcagc gaatgcagct tcggtagacg tcgatggcgt tggatgggt gtgtatctct 5760
cgctttatgg gcaagaaatc acgctagatc gagatgatgc gttctactc ctcgatcgac 5820
ttcaggacgc gttgcgaccc caagccaaact aagaaccctc cagatggtct aaacgaggcg 5880
caaactcgct cctggccctg cggcgaggc accgaagcgc gagcgaagcg gagcgcgtag 5940
gtgggggagc ctgcggcag cggcgccga gccgcccctt tgtaatagg tgcgtatcg 6000
ggccatagca ggtcagagga tggtttacg atgactcatg ctcaccacgc caagtactga 6060
tg 6062

<210> 103

<211> 6153

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:vector pNit-QC1

<400> 103

gttaacgcattccgaaacccacccactc accttagtccg acatccgtac cttggaaacc 60
gacctgtatt ggcatttcag ttggacatcg accagtggcg ttgcttagtt caagaccatg 120
tccagcccgaaaggcgccatcg actctagccacccgaggtag tccgggtggcc acatcccgtc 180
gcgcggaaac gtcacgcgtct tggatggcct tcccttggatcg tttgcgtatca gtggcacacc 240
tctaccgtctt gatattcgatgttccgtccg gctgcgcaca tctgcactgt tgacgcgttc 300
aggtcaccggcttccgcaccatcccttccatcgaaatcgatccgtccg gtgcgcggcc 360
gcagcccccgttccatcgatcccttccatcgaaatcgatccgtccg gtgcgcggcc 420
tccctccgttccatcgatcccttccatcgaaatcgatccgtccg gtgcgcggcc 480
cgacatggccgttccgtccatcgatcccttccatcgaaatcgatccgtccg gtgcgcggcc 540
tgcgggtccgttccatcgatcccttccatcgaaatcgatccgtccg gtgcgcggcc 600
ggcgacgcgcgccttccatcgatcccttccatcgaaatcgatccgtccg gtgcgcggcc 660
tcaccagcgttccgtccatcgatcccttccatcgaaatcgatccgtccg gtgcgcggcc 720

gattcttggc agtggccctg ggggccccgca tggcgatggt gcccggccgac atgaaagggc 780
gcgcacgtc cgtccctcctc ggcggtgtca cgatcgcatg ttagccggt gttccgggg 840
gcgccttcctt gggtaaaatg tggggctggc gtgcagcggt ctggctgtc gtcgtcatct 900
ccgccccctgc agtggtggcg attatgttcg ccaccccgcc cgagccgctt gcagagtcca 960
caccgaatgc caagcgtgaa ctgtccctcac tgcgctcacg caagctccag ctcatgctt 1020
tcctcggggc gctgatcaac ggcgcaacgt tctgttcgtt cacgtacatg gcccacgc 1080
tcaccgacat ctccggtttc gactcccggtt ggattccgtt gctgctgggg ctgttcgggc 1140
tcggatcggtt catcggtgtc agcgtcggag gcaggctcgc cgacacccgg cggttccaac 1200
tgctcgctgt cgggtccgca gcactgttga cgggatggat cgtcttcgtct ctacggcat 1260
cccaccccgcc ggtgacattt gttatgtgtt tcgtgcaggg cgctttgtcc ttgcgggtcg 1320
gctcgacttt gatctcccgat gtgctctacg ccggccgacgc ggcacccgacc ttgggtggat 1380
cgittcgcgac ggccgcgttc aacgtcggtg ctgcacttggg accggcgctc ggcgggttgg 1440
cgatcggcat gggcttgagc taccgcgccc cgctctggac gagcgcgcgctc ctggtgacac 1500
tcgcgatcgat catcggtgtca gccacccttgt ctctgtggcg ggcaccagcg tctgtccacg 1560
aatctgtccc cgccgtacca gaaaccagga tctgtgagtg tggtgactga tctgtgcacg 1620
ctcagcagtc accgcgcgtc cgcgtcgtac cgaggccag cgccaaacagg tgtgtggagc 1680
tctgccccctg cctcttcac gcgaactcac ttttcagtgc ggcgatacgt gctcggtgag 1740
ttccactaca gcgaggtacc gagctcgtaa ggtggcactt ttggggaaa tgtgcgcgga 1800
acccttattt gtttattttt ctaaatacat taaaatatgt atccgctcat gagacaataa 1860
ccctgataaa tgcttcaata atattgaaaa aggaagagta tgagtattca acattccgt 1920
gtcgccctta ttccctttt tgcggcattt tgccttcctg ttttgctca cccagaaacg 1980
ctggtgaaag taaaagatgc tgaagatcag ttgggtgcac gagtggtta catcgaactg 2040
gatctcaaca gcggtaagat ctttgagagt ttgcggcccg aagaacgtt tccaatgtg 2100
agcactttt aagttctgtc atgtggcgcg gtattatccc gtattgacgc cggcaagag 2160
caactcggtc gccgcataca ctatctcag aatgacttgg ttgagtactc accagtcaca 2220
gaaaagcatc ttacggatgg catgacagta agagaattat gcagtgcgtc cataaccatg 2280
agtgataaca ctgcggccaa cttacttctg acaacgatcg gaggaccgaa ggagctaacc 2340
gccttttgc acaacatggg ggatcatgtc actgccttg atcggtggaa accggagctg 2400
aatgaagcca taccaaacga cgagcgtgac accacgatgc ctgttagcaat ggcaacaacg 2460
ttgcgcaaac tattaaactgg cgaactactt actctagctt cccggcaaca attaatagac 2520

tggatggagg cgataaaatg tgcaggacca cttctgcgt cggcccttcc ggctggctgg 2580
tttattgctg ataaatctgg agccggtagag cgtgggtctc gcggtatcat tgcagcactg 2640
gggccagatg gtaagccctc ccgtatcgta gttatctaca cgacggggag tcaggcaact 2700
atggatgaac gaaatagaca gatcgctgag ataggtgcct cactgattaa gcattggtaa 2760
ctgtcagacc aagtttactc atatatactt tagattgatt taaaacttca ttttaattt 2820
aaaaggatct aggtgaagat ccttttgat aatctcatga cccaaatccc ttaacgttag 2880
tttcgttcc actgagcgtc agacccgta gaaaagatca aaggatctt ttgagatcct 2940
tttttctgc gcgtaatctg ctgcttgcaaa acaaaaaaaaac caccgctacc agcggtggtt 3000
tggggccgg atcaagagct accaactctt ttccgaaagg taactggctt cagcagagcg 3060
cagataccaa atactgttct tctagtgttag ccgtagtttag gccaccactt caagaactct 3120
gtagcaccgc ctacataacct cgctctgcta atcctgttac cagtggtcgc tgccagtggc 3180
gataagtctgt gtcttaccgg gttggactca agacgatagt taccggataa ggcgcagcgg 3240
tcgggctgaa cgggggggttc gtgcacacag cccagcttgg agcgaacgac ctacaccgaa 3300
ctgagatacc tacagcgtga gctatgagaa agcgcacgc ttcccgaagg gagaaaggcg 3360
gacaggtatc cggttaagcgg cagggtcgga acaggagagc gcacgaggaa gcttccaggg 3420
ggaaacgcct ggtatcttta tagtcctgtc gggtttcgcc acctctgact tgagcgtcga 3480
ttttgtgat gtcgtcagg gggcggagc ctatggaaaa acgccagcaa cgcggcttt 3540
ttacggttcc tggccttttgccttgc gtcacatgt tcttcctgc gttatcccct 3600
gattctgtgg ataaccgtat taccgcctt gagttagctg ataccgctcg ccgcagccga 3660
acgaccgagc gcagcggagtc agtgagcggag gaagcggaag agcgcctaatt acgcaaaaccg 3720
cctctcccg cgcgttggcc gattcattaa tgcagctggc acgactagag tcccgctgag 3780
gcggcgtagc aggtcagccg ccccagcggt ggtcaccaac cggggtgaa cggcggccgt 3840
atcgggtgtg tccgtggcgc tcattccaac ctccgtgtt ttgtgcaggt ttcgcgtgtt 3900
gcagtccttc gcaccggcac ccgcagcggag gggctcacgg gtgccgggtgg gtcgactagt 3960
tcagtgtgg tggatgtgat gtcgagagaa tctaagcttg gatccgcggc cgctacgtag 4020
aattccata tggatgtggat gatggtggtt catggatataat ctcccttta aagttaaaca 4080
aaattatttc tagacgccgt ccattatacc tcctcacgtg acgtgaggtg caagcccgaa 4140
cggtccgcgt gccacgccgt gagccggccgc gtgccgtcgg ctccctcagc cggggcggcc 4200
gtgggagccc gcctcgatat gtacacccga gaagctccca gcgtccctt gggccgcgt 4260
actcgaccac cacgcacgca caccgcacta acgattcggc cggcgctcga ttcggccggc 4320

gctcgattcg gccggcgctc gattcgccg gcgctcgatt cggccggcgc tcgattcggc 4380
cgagcagaag agtgaacaac caccgaccac gcttccgctc tgcgcggcgt acccgaccta 4440
cctcccgcaag ctcgaagcag ctcccgagg taccggcgta ctcacccgccc tgtgctcacc 4500
atccaccgac gcaaagccca acccgagcac acctcttgcac ccaagggtgcc gaccgtggct 4560
ttccgctcg agggttccag aagaaatcgaa acgatccagc gcggcaaggt tcaaaaagca 4620
ggggttggtg gggaggaggt tttgggggt gtcgcggga tacctgatat ggcttgttt 4680
tgcgtatcg aataatttc catatagcct cggcgctcg gactcgaata gttgatgtgg 4740
gcgggcacag ttgcggccatg aaatccgcaa cggggggcgt gctgagcgat cggcaatggg 4800
cgatgcgtt gttgcggccatg caccggccgt tcgcgacgaa caacctccaa cgaggctagt 4860
accggatgag ccgcgacgac gcattggcaa tgcggtaatcgatc cgagcattca ccgcacgcgt 4920
tgctcgatc tatcgatc gactgcgtatc acgttgcgtc cgcgatgcgc gcattcgagc 4980
aaccatccga ccatccggcg ccgaactggg tcgcacaatc gccgtccggc cgccacacaca 5040
tcggatggtg gctcgcccc aaccacgtgt gccgcaccga cagcgcccgatc ctgacgcccac 5100
tgcgtacgc ccaccgcatac gaaaccggcc tcaagatcag cgtcgccggc gatttcgcgt 5160
atggcggca actgaccaaa aacccgatttcc accccgatgtt ggagacgatc tacggccgg 5220
ccaccccgta cacattgcgg cagctggccaa ccatccacac accccggcag atgcgcgtc 5280
ggcccgatcg ggccgtggc ctggccgca acgtcaccat gttgcacgcc accccggcgt 5340
gggcataccgc acagttggtg caacaccgaa acggaaccgg ccgcgactgg gaccatctcg 5400
tcctgcagca ctgcacgcgtc gtcaacaccg agttcacgc accactgcgtc ttcaccgaag 5460
tacgcgcac cgcgcaatcc atctccaaat ggatctggcg caatttcacc gaagaacagt 5520
accgagcccg acaagcgat ctcggtaaa aaggcggcaa ggcaacgaca ctcgccaac 5580
aagaagccgt ccgaaacaat gcaagaaagt acgacgaaca tacgatgcga gaggcgatta 5640
tctgatggc ggagccaaaa atccggtgcg ccgaaagatg acggcagcag cagcagccga 5700
aaaattcggt gcctccactc gcacaatcca acgttgcgtt gctgagccgc gtgacgatta 5760
cctcgccgt gcgaaagctc gccgtgacaa agctgtcgag ctgcggaaagc aggggttggaa 5820
gtaccggaa atcgccgaag cgatggaaact ctcgaccggg atcgccggcc gattactgca 5880
cgacgcccgc aggacacggcg agatccagc ggaggatctg tcggcgtaac caagtcaac 5940
ggttgtcggt ttcggccgg cgctcgccac tcggaccggc cggcgatgg tggctcgct 6000
ctggcgccagc gtcaatcgatcc gccgaaggcc tgcgtatcgac cggcttcgac tgaagtatga 6060
gcaacgtcac agcctgtgtatcc gctcaacgcgtc gaccgttacc tggatgtatcc 6120

ccgccccgtg ggcatgagca acggccaact ctc

6153

<210> 104

<211> 6157

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:vector pNit-QC2

<400> 104

gttaacgcat ccgaaacctc cacccactc acctagtccg acatccgtac ctggaaacc 60
gacctgtatt ggcatttcag ttggacatcg accagtggcg ttgcttagtt caagaccatg 120
tccagcccga aggcgccag actctagcca ccggaggtag tccggtgcc acatcccgtc 180
gcgcccgaac gtcacgctct tgtgtggcct tcccttgttg tttgcgatca gtggcacacc 240
tctaccgtct gaatttcgag tctggcctcg gctgcgcaca tctgcactg tgacgctgtc 300
aggtcacccg cttcgccgctt accagttcct ttcatcgaat cgagcttccg gtgccgcgc 360
gcagccccc tgaccatcct cagattttat ggagtctcgc agtgccttc gctatctacg 420
tcctcgccgt tgctgtcttc gcccagggca catccgagtt catgttgtcc ggactcatac 480
cgacatggc ccgtgacctc ggggttcgg tccccgcgc cggactcctc acctccgcct 540
tcgcggcgg gatgatcatc ggcgctccgt tgcgttat cgccagcatg cggtgccccc 600
ggcgacgcgc ccttctgaca ttccatca cgttcatgt ggtccacgtc atcggcgcgc 660
tcaccagcag cttcgaggc ttgcgttca cacgcacgt gggagccctc gccaatgcgc 720
gattcttggc agtggccctg gggcgccgaa tggcgatgtt gcccgcgc acatggggc 780
gcgccacgtc cgtccctc cgcgggtca cgttgcacgt tgcgttgcgtt gttccgggg 840
gcgccttcctt gggtaaatg tggggctggc gtgcagcgtt ctggctgtc gtcgtcatct 900
ccgccccgtc agtggtggcg attatgttcg ccacccggc cgagccgtt gcagagtcca 960
caccgaatgc caagcgtgaa ctgtccac tgcgttacg caagctccag ctcatgttg 1020
tcctcgccgc gctgatcaac ggcatgacgt tctgttcgtt cacgttacatg ggcgcacgc 1080
tcaccgacat ctccggtttca gactccgtt ggattccgtt gctgctgggg ctgttcggc 1140

tcggatcggtt catcggtgtc agcgtcgag gcaggctcgcc cgacacccgg ccgtttccaac 1200
tgctcgctgt cgggtccgca gcactgttga cggatggat cgtctcgct ctcacggcat 1260
cccacccgc ggtgacattt gtatgtgt tcgtcaggg cgctttgtcc ttgcggctcg 1320
gctcgacttt gatctccag gtgctctacg ccgcccacgc ggcaccgacc ttgggtggat 1380
cggtcgac ggcgcgttc aacgtcggtg ctgcactggg accggcgctc ggcgggttgg 1440
cgatcgcat gggcttgagc taccgcgccc cgctctggac gagcgcgcg ctggtagac 1500
tcgcgatcgat catcgccgca gccacccgtt ctctgtggcg gcgaccagcg tctgtccacg 1560
aatctgtccc cgcctgacca gaaaccagga tctgtgatgt tggtgactga tctgtgcacg 1620
ctcagcagtc accgcgcgct cgcgtcgatc cgagggccag cgccaacagg tgtgtggagc 1680
tctgcccctg cctctttcac gcgaactcac tttcagtg ggcgatacgt gctcggtgag 1740
ttccactaca gcgaggtacc gagctcgta ggtggcactt ttggggaaa tgtgcgcgga 1800
accctattt gtttattttt ctaaatacat tcaaataatgt atccgctcat gagacaataa 1860
ccctgataaa tgcttcaata atattaaaaa aggaagagta tgagtattca acattccgt 1920
gtcgccctta ttccctttt tgcggcattt tgccttcctg ttttgctca cccagaaacg 1980
ctggtgaaag taaaagatgc tgaagatcag ttgggtgcac gagtggtta catgaaactg 2040
gatctcaaca gcggtaagat ctttgagagt ttgcggcccg aagaacgtt tccaatgtatg 2100
agcacttttta aagtctgtatgtt atgtggcgcg gtattatccc gtattgacgc cggcaagag 2160
caactcggtc gccgcataca ctattcttag aatgacttgg ttgagtagtc accagtcaca 2220
gaaaagcatc ttacggatgg catgacagta agagaattat gcagtgcgtc cataaccatg 2280
agtgataaca ctgcggccaa cttaactctg acaacgatcg gaggaccgaa ggagctaacc 2340
gctttttgc acaacatggg ggatcatgtt actcgcttg atcggtggaa accggagctg 2400
aatgaagcca taccaaacga cgagcgtgac accacgatgc ctgttagcaat ggcaacaacg 2460
ttgcgcaaactt tattaaactgg cgaactactt actctagctt cccggcaaca attaataagac 2520
tggatggagg cggataaagt tgcaggacca cttctgcgtc cggcccttcc ggctggctgg 2580
tttattgctg ataaatctgg agccggtgag cgtgggtctc gcggtatcat tgcagcactg 2640
gggccagatg gtaagccctc ccgtatcgta gttatctaca cgacggggag tcaggcaact 2700
atggatgaac gaaatagaca gatcgctgag ataggtgcct cactgattaa gcattggtaa 2760
ctgtcagacc aagtttactc atatataactt tagattgatt taaaacttca ttttaattt 2820
aaaaggatct aggtgaagat ctttttgat aatctcatga ccaaaatccc ttaacgtgag 2880
tttcgttcc actgagcgtc agacccgtt gaaaagatca aaggatcttgc ttgagatcct 2940

tttttctgc gcgtaatctg ctgcttgcaa acaaaaaaac caccgctacc agcggtggtt 3000
tgtttgccgg atcaagagct accaactctt ttccgaagg taactggctt cagcagagcg 3060
cagataccaa atactgttct tctagtgtag ccgtagttag gccaccactt caagaactct 3120
gtagcaccgc ctacataacct cgctctgcta atcctgttac cagtggctgc tgccagtggc 3180
gataagtcgt gtcttaccgg gtggactca agacgatagt taccggataa ggcgcagcgg 3240
tcgggctgaa cgggggttc gtgcacacag cccagcttgg agcgaacgac ctacaccgaa 3300
ctgagatacc tacagcgtga gctatgagaa agcgccacgc ttcccgaagg gagaaggcg 3360
gacaggtatc cggtaagcgg cagggtcgga acaggagagc gcacgaggga gcttccaggg 3420
ggaaacgcct ggtatcttta tagtcctgtc gggtttcgcc acctctgact tgagcgtcga 3480
tttttgtat gctcgtcagg gggcggagc ctatggaaaa acgccagcaa cgccgcctt 3540
ttacggttcc tggccttttgc ctggcctttt gctcacatgt tcttcctgc gttatcccct 3600
gattctgtgg ataaccgtat taccgcctt gagtgagctg ataccgctcg ccgcagccga 3660
acgaccgagc gcagcgagtc agtgagcgag gaagcggaag agcgc当地 acgcaaaccg 3720
cctctcccg cgcgttggcc gattcattaa tgcagctggc acgactagag tcccgtgag 3780
gcggcgtagc aggtcagccg ccccagcggt ggtcaccaac cggggtgaa cggccgggt 3840
atcgggtgtg tccgtggcgc tcattccaac ctccgtgtt ttgtgcaggt ttgcgtgtt 3900
gcagtcctc gcaccggcac ccgcagcgag gggctcacgg gtgccgggtt gtcgactagt 3960
tcagtgtatgg ttaggtgtat gctcgagaga tctaagctt gatccgcggc cgctacgtag 4020
aattcccatg gcgtgtatggt gatgggtatg gcccataatgt atatctcctt cttaaagtta 4080
aacaaaatta tttctagacg ccgtccattaa tacctcctca cgtacgtga ggtgcaagcc 4140
cgacgttcc gcgtgccacg ccgtgagccg ccgcgtgccc tcggctccct cagccggc 4200
ggccgtggga gcccgcctcg atatgtacac ccgagaagct cccagcgtcc tcctggccg 4260
cgatactcga ccaccacgca cgcacaccgc actaacgtt cggccggcgc tcgattcggc 4320
cggcgctcga ttccggccgc gctcgattcg gccggcgctc gattcggccg ggcgtcgatt 4380
cggccgagca gaagagtgaa caaccaccga ccacgcttcc gctctgcgcg ccgtacccga 4440
cctacccccc gcagctcgaa gcagctcccg ggagtaccgc cgtactcacc cgcctgtgct 4500
caccatccac cgacgcaaag cccaaaccga gcacaccctt tgcaccaagg tgccgaccgt 4560
ggcttccgc tcgcagggtt ccagaagaaa tcgaacgatc cagcgccgca aggttcaaaa 4620
agcaggggtt ggtggggagg aggtttggg ggggtgcgc gggataccgt atatggctt 4680
gttttgcgtat gtcgaataat ttccatata gcctcggccgc gtcggactcg aatagttgat 4740

gtggggcgggc acagttgcccatgaaatcc gcaacgggggcgtgctgag cgatcgccaa 4800
tggcggatcggtgttgcgtccgcaccggccgttcgcga cgaacaacctccaacgagg 4860
cagtaccgatgagccgcgcacgcattgcattgcgttgcgac ttcaccgcac 4920
gcgttgctcgatctatcgatcgactgcgttgcgttgcgcattgcgcattc 4980
gagcaaccatccgaccatccggccgcgaac tgggtcgac aatcgccgtccggccgcga 5040
cacatcgatggtggctcgccccaccacgtgtggccgcacccgacagcgccgactgac 5100
ccactgcgcgtacgcccaccgcattgcgaaaccggcctcaaga ttagcgtcgccggcgatttc 5160
gcgtatggcgggcaactgac caaaaacccgattcaccccgattggagac gatctacggc 5220
ccggccaccccgatcacattgcggcagctggccaccatccacacacccggcagatgcgc 5280
cgtcggcccgatcgccgtggcctggccgcacacgttgcgcacccgg 5340
cgatggcataccgcagtggtggcaacaccgaaacggaa cggccgcga ctgggaccat 5400
ctcgtccgtacactgcacgcgtcaacaccgagttca cgacaccact gcccgttccacc 5460
gaagtacgcgccccccgcacatccatctccaaatggatctggcgaattt caccgaagaa 5520
cagtaccgagccgcacaagcgcattcggt caaaaaggcg gcaaggcaac gacactcgcc 5580
aaacaagaagccgtccgaaa caatgcaaga aagtacgacg aacatacgat gcgagaggcg 5640
attatctgatggcggagccaaaaatccggtgccgcggaaatgacggca gcaaggcg 5700
ccgaaaaattcggtgcctccactgcacaa tccaaacgctt gttgtcgagccgtgacg 5760
attacctcgccgtgcgaaa gctgcgcgtgacaaagctgtcgactgcgg aagcagggtt 5820
tgaagtaccggaaatcgccgaagcgatgg aactctcgac cgggatcgccggccgattac 5880
tgcacgacgcgcgcaggac ggcgagattt cagcggagga tctgtcgccgtaaccaagtc 5940
agcgggttgttgcgttccggccggcgcgtgcactcgac cggccggcgatgggtttct 6000
gccctctggcg cagcgtcagctaccgcgaa ggcctgtcat cggccggctt cgactgaagt 6060
atgagcaacgtacagcctgtgatggatgatccgcgtcac gctgcaccgc tacctgttca 6120
gctgcccggccgatggcatgagcaacggcc aactctc 6157

〈210〉 105

〈211〉 6227

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:vector pNit-RC1

<400> 105

gttaacgcat ccgaaacctc cacccactc acctagtccg acatccgtac ctggaaacc 60
gacctgtatt ggcatttcag ttggacatcg accagtggcg ttgcttagtt caagaccatg 120
tccagcccgaa agggtccag actctagcca ccggaggtag tccggtgcc acatcccgtc 180
gcgcccgaac gtcacgctct tgtgtggcct tcccttggtttgcata gtggcacacc 240
tctaccgtct gaatttcgag tctggcctcg gctgcgcaca tctcgactg tgacgtgtc 300
aggtcaccggccttccgacc accagttcct ttcattcaat cgagcttccg gtgccgcgc 360
gcagccccc tgaccatcct cagattttat ggagtctcgc agtgccttc gctatctacg 420
tcctcgggct tgctgtcttc gcccaggca catccgagtt catgttgcggcc 480
cgacatggc ccgtgacccgcggg tccccgcgc cggactcctc acctccgcct 540
tcgcggtcgg gatgatcatc ggctccgt tgatggctat cgccagcatg cggtgccccc 600
ggcgacgcgc cttctgaca ttccatca ctttcatgt ggtccacgtc atcggcgcgc 660
tcaccagcag cttcgaggc ttgttggca cacgcatgt gggagccctc gccaatgccg 720
gattcttggc agtggccctg gggcgccga tggcgatggt gcccgcac atgaaaggc 780
gcgccacgtc cgtcccttc ggcgggtca cgatcgcatg ttagccggt gttccgggg 840
gcgccttccttggtaatg tggggctggc gtgcagcggtt ctggctgtc gtcgtcatct 900
ccgccccctgc agtggtggcg attatgttgc ccacccggc cgagccgctt gcagagtcca 960
caccgaatgc caagcgtgaa ctgtccac tgcgtcacg caagctccag ctcatgttg 1020
tcctcggggc gctgatcaac ggctcaacgt tctgttgcgtt cacgtacatg ggcacccacgc 1080
tcaccgacat ctccggtttc gactccgtt ggattccgtt gctgctgggg ctgttgcggc 1140
tcggatcggtt catcggtgtc agcgtcgag gcaggctcgc cgacacccgg ccgttccaac 1200
tgctcgctgt cgggtccgca gcactgttga cggatggat cgtttcgct ctcacggcat 1260
cccacccggc ggtgacattt gttgtgttgc tgcgtcaggcg cgtttgtcc ttgcgggtcg 1320
gctcgactttt gatctccag gtgttgcacg ccgtcgacgc ggcacccgacc ttgggtggat 1380
cggtcgac ggcgcgttc aacgtcggttgc tgcgtcaggcg accggcgctc ggcgggttgg 1440
cgatcgacat gggctgttgc taccgtggcc cgttgcgttgc gaggccgcgtt ctgttgcac 1500
tcgcgtatgtt catcggtgttgc gacccatgtt cttgtggcg ggcacccgacc tctgtccacg 1560

aatctgtcccc cgccctgacca gaaaccaggta tctgtgagtg tggtgactga tctgtgcacg 1620
ctcagcagtc accgcgcgct cgcgtcgta cgagggccag cgccaacagg tgtgtggagc 1680
tctgcccctg cctctttcac gcgaactcac tggcgtgc ggcgatacgt gctcggtgag 1740
ttccactaca gcgaggtacc gagctcgta ggtggcactt ttcggggaaa tgtgcgcgga 1800
acccctattt gtttattttt ctaaatacat tcaaataatgt atccgctcat gagacaataa 1860
ccctgataaa tgcttcaata atattgaaaa aggaagagta ttagtattca acatttccgt 1920
gtcgccctta ttccctttt tgccgcattt tgccttcctg ttttgctca cccagaaacg 1980
ctggtaaaag taaaagatgc tgaagatcag ttgggtgcac gagtgggta catcgaactg 2040
gatctcaaca gcggtaagat ccttgagagt tttcgccccg aagaacgtt tccaatgatg 2100
agcactttt aagttctgct atgtggcgcg gtattatccc gtattgacgc cggcaagag 2160
caactcggtc gccgcataca ctattctcag aatgacttgg ttgagtactc accagtcaca 2220
gaaaagcatc ttacggatgg catgacagta agagaattat gcagtgcgtc cataaccatg 2280
agtgataaca ctgcggccaa cttaacttctg acaacgatcg gaggaccgaa ggagctaacc 2340
gctttttgc acaacatggg ggatcatgta actcgccctg atcggtggaa accggagctg 2400
aatgaagcca taccaaacga cgagcgtgac accacgatgc ctgttagcaat ggcaacaacg 2460
ttgcgcaaac tattaactgg cgaactactt actctagctt cccggcaaca attaatagac 2520
tggatggagg cggataaaagt tgcaggacca ctctgcgtc cggcccttcc ggctggctgg 2580
tttattgctg ataaatctgg agccggtgag cgtgggtctc gcggtatcat tgcagcactg 2640
gggccagatg gtaagccctc ccgtatcgta gttatctaca cgacggggag tcaggcaact 2700
atggatgaac gaaatagaca gatcgctgag ataggcct cactgattaa gcattggtaa 2760
ctgtcagacc aagtttactc atatatactt tagattgatt taaaacttca ttttaattt 2820
aaaaggatct aggtgaagat ctttttgat aatctcatga ccaaaatccc ttaacgtgag 2880
tttgcgttcc actgagcgtc agaccccgta gaaaagatca aaggatctt cttgagatcct 2940
tttttctgc gcgtaatctg ctgcgttccaa aaaaaaaaaac caccgctacc agcggtggtt 3000
tggggccgg atcaagagct accaactctt tttccgaagg taactggctt cagcagagcg 3060
cagataccaa atactgttct tcttagtgttag ccgttagttag gccaccactt caagaactct 3120
gtagcaccgc ctacataacct cgctctgcta atcctgttac cagtggtgc tgccagtggc 3180
gataagtcgt gtcttaccgg gttggactca agacgatagt taccggataa ggcgcagcgg 3240
tcgggctgaa cgggggggttc gtgcacacag cccagcttgg agcgaacgac ctacaccgaa 3300
ctgagatacc tacagcgtga gctatgagaa agcgccacgc ttcccgaagg gagaaggcgc 3360

gacaggtatc cggttaagcgg cagggtcgga acaggagagc gcacgaggga gcttccaggg 3420
ggaaacgcct ggtatctta tagtcctgtc gggttcgcc acctctgact tgagcgtcga 3480
tttttgtat gctcgtcagg gggcggagc ctatggaaaa acgccagcaa cgcggccccc 3540
ttacggttcc tggccttttgcgtt gctcacatgt tcttcctgc gttatcccct 3600
gattctgtgg ataaccgtat taccgcctt gagtgagctg ataccgctcg ccgcagccga 3660
acgaccgagc gcagcggatc agtgagcgag gaagcggaag agcgccta atcgcaaaaccg 3720
ccctctcccg cgcgttggcc gattcattaa tgcagctggc acgactagag tcccgtttag 3780
gcggcgttagc aggtcagccg ccccagcggt ggtcaccaac cggggtgaa cggcggccgt 3840
atcgggtgtg tccgtggcgc tcattccaac ctccgtgtt ttgtgcaggt ttcgcgtgtt 3900
gcagtcctc gcaccggcac ccgcagcgag gggctcacgg gtggccgttgg gtcgactagt 3960
tcagtatgg tggatgtat gctcgagaga tctaagctt gatccgcggc cgctacgttag 4020
aattccata tggatgtat gatggtggcc catggatata ctcccttta aagttaaaca 4080
aaattatttc tagacgcgtt ccattatacc tcctcacgtg acgtgaggtg caagccggaa 4140
cggtccgcgt gccacgcgtt gagccgcgcgt gtggccgttgg ctccctcagc ccggggcc 4200
gtgggagccc gcctcgat gtaaagcat gggactcgc cgccggactag cggcttcccg 4260
acacgcgtt ctgaccagca gatcagcgat aaacgcttt tctgctgtt aagtggataa 4320
aaaccaaata atcgatgaac ctcgaagtgg agtatccgag ctgaacttagc tggattttact 4380
ccgaaaatac gagcggcgac gaagggtgtt ggaccaccct gccggccct tcgaggctcc 4440
tacttgacta ggaccccgct cggttatgacc agcgttaagt gtcgttgcgtt ttccggcaaa 4500
gaccggccccc ctgtccgtt gtgtccgtt aagcgcggca tccggcacga acttcgaccc 4560
aaacttcaac aaatcaccac gtcagaaact ttatgcgt gcggccggcc gatttccggc 4620
gtgaacggtg tgaccatgtt caacggtccc aaaggttccg gatttggagg ctttcgttcc 4680
tgccggaaagg gctggatctg cccctgtgtt gctggaaaag tcggcgcaca tcgagcagac 4740
gaaatttctc aagtgttgc tcatcaactc gggactggat ctgttgcgtt ggtgaccatg 4800
accatgcgcc ataccgctgg gcagcgtttt catgattttt ggactggact ttccggcagcc 4860
tgaaaagctg cgaccaatgg ccggccgttgg cgtaccgaac gtggaaatgtt cggctgcgc 4920
ggatacgtac gagctgttga aatcactcac ggaaaaaaacg gttggcacgt tcacgtccac 4980
gctctactca ttttcagcgg tgacgtgagt gagaacatcc tcgaatcctt ctggatgcg 5040
atgttcgtatc ggtggaccccaaaactcgtt tctctggat ttgcgtggcc actacgtaat 5100
tcaggtggac tcgacgttcaag aaagatggt ggagaagctg accaagttct cgctgcatac 5160

ctgacgaaaa ttgcacccgg ggtcgccatg gaagtccggca gtggcgacgg aaaaagtgg 5220
cggcacggca accgtgcacc ttggaaatc gccgttgatg cagtcggagg agatccacaa 5280
gcgttggAAC tctggcgca gtttggatTC gtttcgatgg gacgcccggc aatcgcatgg 5340
tctcggtggac tgcgcgcccgg agctggtctt ggcgtagaac tcacggatgc tcagattgtc 5400
gaacaggaag aatctgcccc ggtcatggTT gcgtatccatc cggctcggtc ctggatgtg 5460
attcggaact gtgcgcctta cgtttgcga gagatccttgc gactcgtggaa agcgggcgcg 5520
acctggaaa accttcgtga ccacttgcatt tatcgattgc ctgcagcgga tgtgcggcct 5580
ccgataatat cgattcgtaa gtgaaatgtc ttgggtgtca acaactttca ctcgtatgaa 5640
ccacacttga gggcatcccc ccgatacttg ccgcTTggaa gctgggtgtc tctctgtcag 5700
ggctgcgata gcaccgcgta gcggcttggc cttgacagag agacggcctg tttcatggTT 5760
ggctctcgcccc ggctgaccgg gcagatagaa aaaggccggc cgattttggct gccgactatt 5820
tttgcaggtt aaccatctc atgagcatca atgaacgtcc cgttggatTC gcagcgaatg 5880
cagcttcggt agacgtcgat ggcgttgta tgggtgtgtc tctctcgctt tatggcaag 5940
aaatcacgt agatcgagat gatgcgttcc tactcctcga tcgacttcag gacgcgttgc 6000
gacctcaagc caactaagaa ccctccagat ggtctaaacg aggccaaac tcgctccctgg 6060
gcctgcgggc ggagcaccga agcgcgagcg aagcggagcg ctaggtggg ggagcctgcg 6120
ggcagcggcg gcggagccgc cgcTTggta ataggtgtatc atcggggcca tagcaggtca 6180
gaggatgtt ttacgatgac tcatgctcac cacgccaagt actgatg 6227

<210> 106

<211> 6231

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:vector pNit-RC2

<400> 106

gttaacgcat ccgaaacctc cacccactc acctagtccg acatccgtac ctggaaacc 60
gacctgtatt ggcatttcag ttggacatcg accagtggcg ttgttaggtt caagaccatg 120

tccagccccga aggccgtccag actcttagcca ccggaggtag tccgggtggcc acatccgtc 180
gccccccgaac gtcacgcgtct tgtgtggcct tcccttgttg ttgcgcata gttggcacacc 240
tctaccgtct gaatttcgag tctggcctcg gctgcgcaca tctgcactg tgacgctgtc 300
aggtcacccg cttcgcggct accagttcct ttcatacgat cgagcttccg gtgccgcgc 360
gcagccccc tgaccatcct cagattttat ggagtcgtc agtgccttc gctatctacg 420
tcctcgggct tgctgtcttc gcccaggca catccgagtt catgttgtcc ggactcatac 480
cgacatggc ccgtgaccc tcgggttcgg tccccgcgc cggactcctc acctccgcct 540
tcgcggtcgg gatgatcatc ggctccgt tgatggctat cgccagcatg cggtgccccc 600
ggcgacgcgc ccttctgaca ttccatca cgttcatgt ggtccacgtc atcgccgcgc 660
tcaccagcag cttcgaggc ttgctggta cacgcatgt gggagccctc gccaatgccc 720
gattcttggc agtggccctg ggggcggcga tggcgatggt gcccggcgc atgaaaggc 780
gcgcacgtc cgtccctcc tcgggtgtca cgatcgcatg ttagccgtt gttccgggg 840
gcgccttcct gggtaaatg tggggctggc gtgcagcgtt ctggctgtc gtcgtcatct 900
ccgccccgtc agtggtgccg attatgttcg ccacccggc cgagccgtt gcagagtcca 960
caccgaatgc caagcgtgaa ctgtccac tgcgtcacg caagctccag ctcatgttg 1020
tcctcggggc gctgatcaac ggcaacgt tctgttcgtt cacgtacatg ggcgcacgc 1080
tcaccgacat ctccggtttc gactccgtt ggattccgtt gctgctgggg ctgttcggc 1140
tcggatcgtt catcggtgtc agcgtcgag gcaggctgc cgcacccgg ccgttccaac 1200
tgctcgctgt cgggtccgca gcactgttga cggatggat cgtttcgct ctcacggcat 1260
cccacccgc ggtgacattt gtgatgtgt tcgtgcaggc cgcttgcctt ttcgcggcgt 1320
gctcgactt gatctccag gtgctctacg ccgcgcacgc ggcacccgacc ttgggtggat 1380
cgttcgac ggcgcgttc aacgtcggtg ctgcactggg accggcgctc ggcgggttgg 1440
cgatcggtt gggctgtgac taccgcgccc cgctctggac gagcgcgcgc ctggtgacac 1500
tcgcgtatgtt catcggtgtc gccacccgtt ctctgtggcg ggcacccggc tctgtccacg 1560
aatctgtccc cgccgtacca gaaaccagga tctgtgagtg tggtgactga tctgtgcacg 1620
ctcagcgtc accgcgcgtc cgcgtcgatc cgagggccag cgccaaacagg tgcgtggagc 1680
tctgccccgtt cctctttcac gcgaactcac tttcgtgc ggcatacgat gctcggtgag 1740
ttccactaca gcgaggtacc gagctcgatc ggtggcactt ttggggaaa tgtgcgcgga 1800
accctatattt gtttattttt ctaaatatcat tcaaataatgt atccgctcat gagacaataa 1860
ccctgataaa tgcttcaata atattgaaaa aggaagagta tgagtattca acattccgt 1920

gtcgccctta ttccctttt tgccgcattt tgccttcctg ttttgctca cccagaaacg 1980
ctggtaaaag taaaagatgc tgaagatcag ttgggtgcac gagtgggtta catgaactg 2040
gatctcaaca gcggtaagat ctttagagat ttgcgtcccg aagaacgtt tccaatgatg 2100
agcacttttta aagttctgct atgtggcgcg gtattatccc gtattgacgc cggcaagag 2160
caactcggtc gccgcataca ctattcicag aatgacttgg tttagtactc accagtcaca 2220
gaaaagcatc ttacggatgg catgacagta agagaattat gcagtgcgtc cataaccatg 2280
agtgataaca ctgcggccaa cttaactctg acaacgatcg gaggaccgaa ggagctaacc 2340
gccttttgc acaacatggg ggatcatgta actgccttg atcgttggga accggagctg 2400
aatgaagcca taccaaacga cgagcgtgac accacgatgc ctgttagcaat ggcaacaacg 2460
ttgcgcaaac tattaaactgg cgaactactt actctagctt cccggcaaca attaataagac 2520
tggatggagg cgatggaaatg tgcaggacca cttctgcgtc cggcccttcc ggctggctgg 2580
tttattgctg ataaatctgg agccggtag cgtgggtctc gcggtatcat tgcagcactg 2640
ggccagatg gtaagccctc ccgtatcgta gttatctaca cgacggggag tcaggcaact 2700
atggatgaac gaaatagaca gatcgctgag ataggtgcct cactgattaa gcattggtaa 2760
ctgtcagacc aagtttactc atatatactt tagattgatt taaaacttca ttttaattt 2820
aaaaggatct aggtgaagat ctttttgat aatctcatga caaaatccc ttaacgtgag 2880
tttcgttcc actgagcgtc agacccgta gaaaagatca aaggatctt ttgagatcct 2940
tttttctgc gcgtaatctg ctgcttgcgg aaaaaaaaaac caccgctacc agcggtggtt 3000
tgcggccgg atcaagagct accaactctt ttccgaagg taactggctt cagcagagcg 3060
cagataccaa atactgttct tctagtgtag ccgtagttag gccaccactt caagaactct 3120
gtagcaccgc ctacataacct cgctctgcta atccgttac cagtggtcgc tgccagtggc 3180
gataagtctgt gtcttaccgg gttggactca agacgatagt taccggataa ggcgcagcgg 3240
tcgggctgaa cggggggttc gtgcacacag cccagcttgg agcgaacgac ctacaccgaa 3300
ctgagataacc tacagcgtga gctatgagaa agcgccacgc ttcccgaagg gagaaggcg 3360
gacaggtatc cggttaagcgg cagggtcgga acaggagagc gcacgaggga gcttccaggg 3420
ggaaacgcct ggtatcttta tagtcgttc gggttcgcc acctctgact tgagcgtcga 3480
ttttgtgat gctcggtcagg gggcggagc ctatggaaaa acgccagcaa cgcggccctt 3540
ttacggttcc tggccttttgcgtcccgatgt tcttcgtcgtc gttatcccct 3600
gattctgtgg ataaccgtat taccgcctt gagtggactg ataccgctcg ccgcagccga 3660
acgaccgagc gcagcgtc agtggagcggag gaagcggaaag agcgccttacat acgcaaaaccg 3720

ccctctccccg cgcggtggcc gattcattaa tgcagctggc acgactagag tcccgttag 3780
gcggcgtagc aggtcagccg ccccagcggt ggtcaccaac cggggtgaa cggcggcggt 3840
atcggtgtg tccgtggcgc tcattccaac ctccgtgtt ttgtgcaggt ttgcgtgtt 3900
gcagtcctc gcaccggcac ccgcagcgag gggctcacgg gtgccgggtgg gtcgactagt 3960
tcagtgtatgg tggatgtat gctcgagaga tctaagcttg gatccgcggc cgctacgtag 4020
aattccatg gcgtgtatgtt gatggatgtt gcccataatgt atatctcctt cttaaagttt 4080
aacaaaattt tttcttagacg ccgtccatta tacctcctca cgtacgtga ggtgcaagcc 4140
cgacgttcc gcgtgccacg ccgtgagccg ccgcgtgccg tcggctccct cagccggc 4200
ggccgtggaa gcccgcctcg atatgtacaa gcatggggac tcggccggaa cttagggctt 4260
cccgacacgc cgtactgacc agcagatcag cgataaacgc tggttctgtt ggttaagtgg 4320
ataaaaaacca aataatcgat gaacctcgaa gtggagtatc cgagctgaac tagctggatt 4380
tactccgaaa atacgagcgg cgacgaaggg tggatggacca ccctgcccgc gccttcgagg 4440
ctcctacttg actaggaccc cgctcggtt gaccagcgta agtgcgttgc acctttccgg 4500
caaagaccgg cccccgttcc tcgtgtcgac cgataagcgc ggcattccggc acgaacttcg 4560
acccaaactt caacaaatca ccacgtcaga aacttttaat gcgtgcggcc ggccgatttc 4620
cgacgtgaac ggtgtgacca tcgtcaacgg tcccaaaggt tccggatttgc gaggcattcg 4680
ctcctgcgga aagggtcgga tctgcccctg ctgtgcggga aaagtgcggcg cacatcgac 4740
agacgaaatt tctcaagtttgc ttgctcatca actcgggact ggatctgttgc cgatggtgc 4800
catgaccatg cgccataccg ctggcagcg tttgcgttgc ttgtggactg gactttccggc 4860
agcctggaaa gctgcgacca atggccggcc atggcgtacc gacgtgaaa tgtacggctg 4920
cgacggatac gtacgagctg ttgaaatcac tcacggaaaa aacggttggc acgttacgt 4980
ccacgcttca ctatgttca gcgggtgacgt gaggatggaaac atcctcgaaat ctttcgttgc 5040
tgcgtatgttgc gatcggttgc cctccaaact cgtgtcttgc ggatgtgttgc cgccactacg 5100
taattcaggt ggactcgacg taagaaagat tggatggaa gctgaccaag ttctcgctgc 5160
atacctgacg aaaattgcac ccggggtcgg catggaaatgc ggcgtggcg acggaaaaag 5220
tggtcggcac ggcaaccgtt caccttggaa aatcgccgtt gatgcgttgc gaggagatcc 5280
acaaggcttgc gaactctggc gcggatgttgc gttcggttgc atggacgcgc gagcaatcgc 5340
atggtctgttgc ggactcgacg cccggatgttgc tcttgggttgc gacgtacgg atgctcagat 5400
tgtcgaacag gaagaatctg cccggatgttgc gttcggttgc attccggctc ggtccctggat 5460
gatgatttcgg aactgtgcgc cttacgtttt cggagagatc cttggacttgc tggaaagcggg 5520

cgcgacctgg gaaaaccttc gtgaccactt gcattatcga ttgcctgcag cggatgtgcg 5580
gcctccgata atatcgattc gtaagtgaaa tgtcttggtg tgcaacaact ttcactcgta 5640
tgaaccacac ttgagggcat ccccccgata cttggcgctt tgaagctggg tgtctcttg 5700
tcagggctgc gatagcaccg cgtagcggct tggccttgac agagagacgg cctgtttcat 5760
ggttggtctc gggggctga ccggcagat agaaaaaggc cggccgattt ggctgccgac 5820
tattttgca ggtaaaccca tctcatgagc atcaatgaac gtcccgttgg tatcgagcg 5880
aatgcagctt cggtagacgt cgatggcggtt gtatgggtg tgtatctctc gctttatggg 5940
caagaaatca cgctagatcg agatgatgcg ttcctactcc tcgatcgact tcaggacg 6000
ttgcgacctc aagccaacta agaaccctcc agatggctta aacgaggcgc aaactcgctc 6060
ctgggcctgc gggcggagca ccgaagcgcg agcgaagcgg agcgcgtagg tggggagcc 6120
tgcggcagc ggcggcggag ccgcccctt ggtataggt gatcatcg 6180
gtcagaggat gttttacga tgactcatgc tcaccacgcc aagtactgtat g 6231

<210> 107

<211> 124

<212> DNA

<213> Rhodococcus erythropolis

<220>

<223> mutated TipA gene promoter

<400> 107

cggccggct gagggagccg acggcacgcg gcggctcacg gcgtggcacg cggAACgtcc 60
ggccttgcac ctcacgtcac gtgaggaggt ataatggacg gcgtcagaga aggggacggc 120
catg 124